Virginia MEDICAL MONTHLY

OFFICIAL PUBLICATION OF THE MEDICAL SOCIETY OF VIRGINIA

CONTENTS

Guest Editorial. J. M. Schmoels, Captain (MC) USNR.... 339

Plastic Surgery of Severe Burns. Everett Idris Evans, M.D., and Theodore J. Alm, M.D., Richmond, Va.---------- 342

Demerol—A Substitute for Morphine in Surgical Practice. Charles Stanley White, M.D., Washington, D. C.-------- 351

Recent Progress in Physical Medicine. Richard Kovacs, M.D., New York, N. Y.---------- 354

A Case of Syphilitic Paralysis Cured by Fever. J. O. Fitzgerald, Jr., M.D., Richmond, Va.---------- 359

The Treatment of Certain Mental Disorders by Psycho-Surgery. R. Finley Gayle, Jr., M.D., and Claude L. Neale, M.D., Richmond, Va. ---------- 361

The Maternal Mortality Situation. C. J. Andrews, M.D., F.A.C.S., Norfolk, Va. ---------- 366

Nutritional Activities of the Virginia State Department of Health. Harry H. Henderson, M.D., A. L. Carson, Jr., M.D., and J. B. Porterfield, M.D., Richmond, Va.-------- 371

Nutrition from the Doctor's Point of View. Walter Wilkins, Surgeon (R), Washington, D. C.---------- 374

The Sun and the Heat Disease. St. George T. Grinnan, M.D., Richmond, Va. ---------- 380

Continued on page 4.

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CONTENTS

(Continued)

Public Health, I. C. Riggin, M.D.	382
Case Report of Maternal Death	383
Mental Hygiene	384
Woman's Auxiliary to the Medical Society of Virginia	384
Book Announcements	386
Editorial	387
Societies	390
News	390
Obituaries	394

INDEX TO ADVERTISERS—Page 6.

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INDEX TO ADVERTISERS

American Meat Institute	25
Bernheim Distilling Co., Inc.	16
Borden's Prescription Products Division	12
Burhans Optical Co., Inc., E. E.	31
Burroughs Wellcome & Co.	17
Burroughs Wellcome & Co.	26
Camel Cigarettes	32
Canada Dry Ginger Ale, Inc.	31
Ciba Pharmaceutical Products, Inc.	Insert
Ciba Pharmaceutical Products, Inc.	27
Cook County Graduate School of Medicine	5
Dominion Laboratories, The	7
Eli Lilly and Company	15
First and Merchants National Bank	14
Garst Bros. Dairy, Inc.	5
Haskell & Co., Inc., Charles C.	3
Haskell & Co., Inc., Charles C.	28
Holland-Rantos Co., Inc.	13
Hynson, Westcott & Dunning, Inc.	14
Jefferson, A. G.	6
Jefferson Medical College of Philadelphia	5
John Marshall—Murphy—William Byrd—Richmond Hotels	5
Johnston-Willis Hospital	19
Lederle Laboratories, Inc.	11
McGuire Clinic	21
Mead Johnson & Company	36
Medical Examining Board of Virginia	4
Medical College of Virginia—Hospital Division	19
Medical Society of Virginia—Medicine in Virginia	14
Miller & Rhoads	22
M & R Dietetic Laboratories, Inc.	34
National Association of Margarine Manufacturers	8
New York Polyclinic Medical School and Hospital, The	4
Parke, Davis & Company	24
Peoples Service Drug Stores	6
Philip Morris & Company, Ltd., Inc.	29
Powers & Anderson	33
Physicians Casualty Ass'n—Physicians Health Ass'n	7
Saint Albans Sanatorium	21
Schenley Laboratories, Inc.	9
Schmid, Inc., Julius	10
S. M. A. Corporation	2
Spencer, Incorporated	7
St. Elizabeth's Hospital	22
Stuart Circle Hospital	20
Tucker Hospital	19
Upjohn	15
U. S. Treasury	20
Valentine Company, Inc.	31
Virginia Engraving Company	4
Westbrook Sanatorium	20
Williams Printing Company	22
Williams Printing Company	33
Winthrop Chemical Co., Inc.	23
Wyeth, Inc.	35

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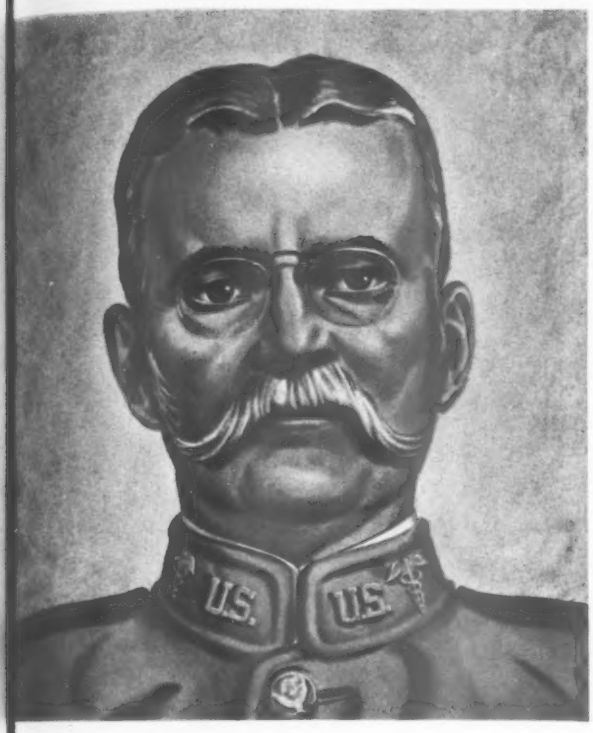

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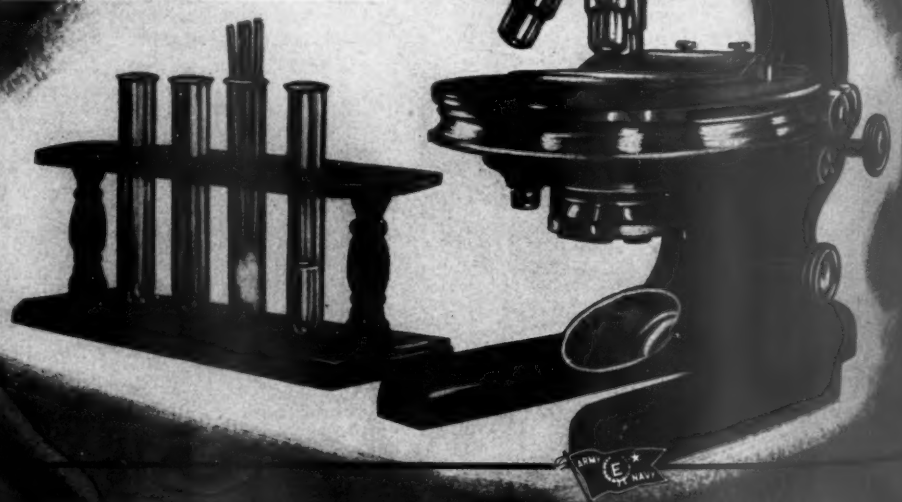

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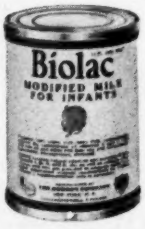

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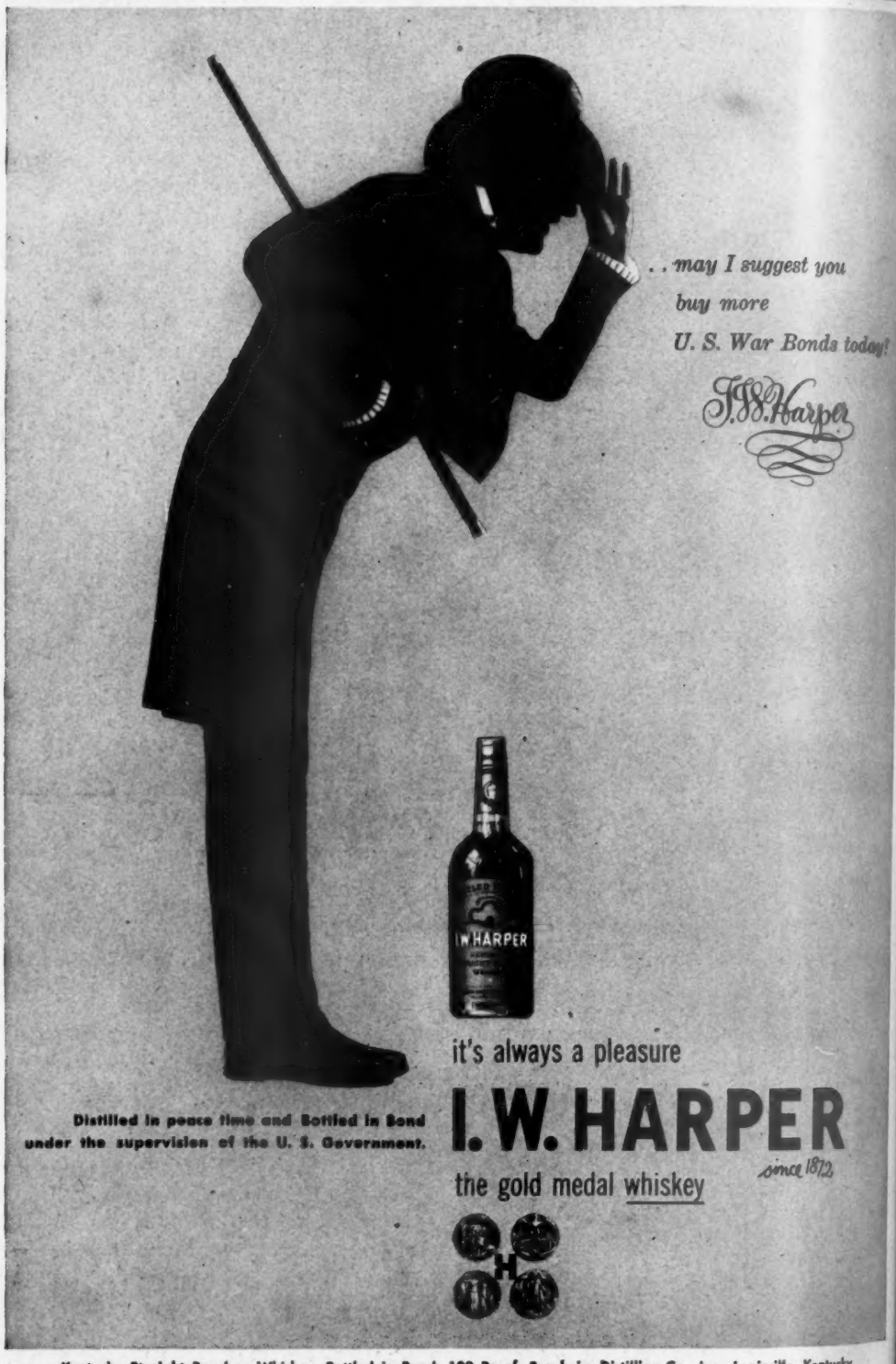
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Guest Editorial

The Naval Mobile Hospital in the South Pacific

THE unbelievable low mortality rate (less than 1%), reported by practically all Naval Hospitals established in the South Pacific area during the recent island offensive, is due to many interesting factors.

The personnel of these expeditionary bases usually consists of Commanding and Administrative officers from the regular Navy. The clinical officers are reserve doctors from various sections of our country, all specialists in their respective fields. Some of these men had had valuable experience in the field of traumatic surgery in civilian life, while others had worked at their specialties at various universities and clinics and private practices. The surgical department of each hospital is directed by a Chief of Surgery who has as assistants several general surgeons and other specialists in the fields of neuro-surgery, urology, ophthalmology, proctology, roentgenology, and orthopedics. The medical department is directed by a similar system, the clinical and malarial control laboratories also being under the Chief of Medicine. The department of Neuro-psychiatry became such an important factor that it necessarily functioned as a separate service.

At first, all nursing care was performed by hospital corpsmen, but later, Navy Nurses arrived and contributed much towards the comfort of our sick and wounded.

The Surgeon General and the Bureau of Medicine and Surgery had, with great foresight, amassed sufficient material, so that when the first hospital unit embarked from the west coast soon after Pearl Harbor, its equipment and physical set-up left little to be desired. The main buildings were constructed of prefabricated steel and wooden huts, which could be erected in 80 man hours per unit. As required, these units were used as single buildings or were placed end to end and used as long wards. There were Diesel motors to furnish power for electricity, and modern laundries, excellent galleys, steel hospital beds with comfortable mattresses, abundant sheets and all types of linens, along with other supplies. There were well lighted and well ventilated operating rooms with the newest surgical equipment, and ample supplies of medical and surgical materials to meet all demands. The x-ray equipment surpassed that of the average civilian hospital.

These Naval Medical Units, known as the Naval Mobile Hospital, are scattered on small islands throughout the South Pacific within a few flying hours from the combat zone. As the fighting zones advanced, the hospitals moved up so that the wounded were never more than a few hours from adequate and actually luxurious care. These 600 bed units are well concealed and are placed on a plateau exposed to the prevailing wind and well out of the malarial areas. A good, smooth road will always lead from

a nearby flying field to the hospital, as practically all serious casualities are evacuated by air. Because of this air service from the fighting front, the wounded can be transported within a few easy flying hours to a modern and comfortable Naval Hospital well away from combat dangers.

The primary care administered the wounded in the combat area influences to a great extent any subsequent treatment. All perforating abdominal wounds are operated immediately whether evidence of peritonitis exists or not, and some type of the Mikulicz procedure is usually performed. After an indwelling duodenal tube is provided, the patient is quickly evacuated by plane to the base hospital. These operations are done in field stations under the most hazardous conditions, but, nevertheless, immediate surgical intervention is always indicated. Exteriorization of the gut is always the procedure of choice, particularly where extensive visceral destruction is noted.

Shrapnel and bullet wounds are treated primarily for hemorrhage and shock. The wounds are dusted with sulfonilamide powder, a battle dressing applied and, if a member is involved, the part is fixed with plaster or other suitable materials. No attempt at debridement is made except under more favorable conditions in a hospital. The life giving role that plasma has played in the treatment of shock cannot be over emphasized or too highly praised. In a well lighted operating room and under the most favorable conditions, a thorough debridement is performed, meticulous care being taken to excise all devitalized tissue and at the same time to preserve all blood vessels and nerves. Foreign bodies are removed after x-ray and fluoroscopic studies are made for location. Arterio-venous aneurysms, which are common following extensive injuries are more favorably operated two or three months following the primary injury.

The treatment of burns depends on the available materials on hand. The best universally accepted immediate treatment is with bland vaseline. Shock is combated by the use of large amounts of intravenous plasma. Pain is controlled by morphine administered in the wonderfully efficient syrette. Skin grafting is started as soon as practicable, and most of the burn cases are ultimately returned to duty. As the result of careful immunization of each man prior to combat and the immediate administration of the "booster shots" of the toxoid following injury, tetanus is no longer a problem. Gas gangrene, although always formidable and dangerous, is found only in a relatively small number of cases. The expert care given our wounded in the fox holes and slit trenches by hospital corpsmen and medical officers, and the short time elapsing until they are transported by air to these luxuriously equipped Naval Hospitals, greatly influence their rapid recovery.

Penetrating wounds of the thorax, head injuries and wounds of the genito-urinary tract, after careful and skillful first-aid treatment at the front, are under the expert care of trained specialists at a base hospital within a few hours away. It is now generally accepted that the liberal use of the sulfonamides dusted in a wound greatly influences the state of contamination and delays infection. The thorough cleansing with sterile water or saline solution and the consequent removal of old blood clots, loose bodies and bits of clothing, together with skillful and thorough debridement still remain the methods of choice of most war surgeons. The oral and intravenous administration of sufficient sulfonamides to maintain adequate blood concentrations is a most valuable therapeutic adjunct.

The administration of plasma and prompt emergency treatment of his wounds, his immediate relief from pain by means of the convenient syrette, and his rapid evacua-

tion to the comfortable clean beds of the Naval Mobile Hospital, are a chain of events which has done wonders to maintain the morale of our fighting man. Too much credit cannot be given to the hospital corpsmen who crawl through the muck and mud of the jungle to administer to the needs of these wounded men.

In this war of scientific destruction let us pause and give thanks to that group of doctors, nurses and corpsmen from your town and mine whose military mission is not to destroy life but to preserve it, and who are doing a courageous and self-sacrificing job.

J. M. SCHMOELE,
Captain (MC) USNR.

EDITOR'S NOTE: Captain John Moore Schmoele, (MC) USNR, is Chief of Surgery at the United States Naval Hospital, Portsmouth, Virginia. A graduate of Washington and Lee University, he received his medical degree from the University of Pennsylvania. He was formerly Chief of Surgery at Advanced Base Hospital No. 2 in the South Pacific Area. Captain Schmoele's home is in Los Angeles, California.

Floral Eponym (17)

BAUHINIA

BAUHINIA is an immense genus of tropical shrubs, trees, and woody vines of the pea family, much resembling the redbud to which they are closely related. They are much planted in Southern California and Florida because of their showy flowers. The genus is named for the brothers, Jean and Caspar Bauhin, noted herbalists of the seventeenth century, the twin leaflets suggesting the two brothers.

Jean Bauhin (1541-1613) was the son of a French physician who was a Protestant exile in Switzerland. He studied botany at Tubingen under Leonard Fuchs. After traveling with Conrad Gesner, he began to practice medicine at Basle where he was elected professor of rhetoric. His great work, *Historia Plantarium Nova et Absolutissima* was planned to contain all that was then known about botany.

Caspar (1560-1624), his younger brother, studied medicine at Padua and Montpelier. He was successively professor of Greek, Anatomy, Botany, and Medicine at Basle. His most important botanical work was *Pinax Theatri Botanici.* His Anatomica Historia (1597) contains an interesting account of the ancient Hebrew myth of the bone of "Luz", the seat of the soul. He is also remembered as the editor of *Gynaeciorum,* a huge encyclopedia of medieval gynecology.

PLASTIC SURGERY OF SEVERE BURNS*

EVERETT IDRIS EVANS, M.D.,
and
THEODORE J. ALM, M.D.,
Department of Surgery, Medical College of Virginia,
Richmond, Virginia.

Severe burns constitute such a large proportion of casualties in the present war that it is proper that attention should be drawn to the problems of plastic surgery in severe burns. Severely burned patients also constitute a fairly large proportion of the daily census in many large civilian hospitals. Improvements in the primary care of the severely burned patient have considerably lowered the immediate mortality of burns so that now the surgeon is being forced to apply himself to the solution of many problems, both physiologic and surgical, in the late care of the burned patient. We are in firm agreement with Whipple[1] that these problems had best be tackled by the general surgeon whose training has been grounded properly in correct surgical principles of wound care, nutrition, etc., rather than delegate them to the maxillo-facial specialist. So many surgical problems have arisen in our experience in the care of severely burned patients, that we think it highly advisable that a general surgeon who has mastered the newer techniques necessary for the plastic repair of severe burns be made a member of a "burn team" in all civilian and military hospitals who must care for a large group of these patients.

We have outlined elsewhere our methods[2] for the primary care of severe burns. They embody, in short, the application of the pressure closed dressing principle described by Koch and Allen,[3] after careful debridement of the burn. We believe that washing and excision is an important procedure in primary burn care, despite the fact that apparently excellent results were obtained by the Massachusetts General Hospital group when they omitted this step in their care of the victims from the Cocoanut Grove disaster. Washing a burn and excision of bleb skin is probably impossible to do in military practice in forward battle areas, but we believe that the general adoption of the attitude that this is a useless step would be a step backwards in the proper care of burns.

*Read at the annual meeting of the Medical Society of Virginia, at Roanoke, October 25-27, 1943.

With the closed pressure dressing methods second degree burns (usually caused by boiling water or steam) heal amazingly rapidly, usually by the time the primary dressing is removed on the 9-14th day. Whole thickness burns (3rd degree) will not heal primarily; our impressions of how best to care for these burns form the basis of this report.

A. SPECIFIC CARE OF BURNED AREAS

All primary dressings are removed (at the 9-14th day) in a saline bath and the burned areas examined. Areas of partial thickness burns will be found to be healed, but the more deeply burned areas will already be seen to be sloughing. After removal of the patient from the saline bath, the burn surface is redressed with sterile *vaseline* gauze strips and an occlusive dressing. It is important that vaseline (rather than sulfanilamide-in-oil) gauze be employed in all except the primary dressings. When sulfanilamide gauze is used for long periods of time, although absorption is limited, the patient responds poorly. These saline baths and pressure-vaseline gauze dressings are repeated about every five days until the slough has entirely separated and granulation tissue has formed. Separation of the slough can be speeded up by careful excision of loose portions while the patient is in the saline bath. It is especially important to remove sloughing fascia as rapidly as possible; else a serious delay in skin grafting will result.

If the granulations appear to be "water-logged", the cause may be from

(a) Hypoproteinemia and anemia, or
(b) Dependent edema, or
(c) Not enough pressure in dressing.

If (b) or (c) is the cause, usually the granulations can be "flattened out" by elevation of the affected part, or use of A-C-E bandages to effect more local pressure on the dressing.

Once the granulation tissue is clean and flat, skin grafting can be begun. Before we discuss the methods we have employed in skin grafting, some attention should be drawn to the problems of the general care

of the patient during this preparatory, and grafting, period.

B. GENERAL CARE OF THE BURNED PATIENT

The more we see and care for severely burned patients, the more are we convinced that not enough attention has been drawn to the psychologic problems involved for the patient, the nurse, and the doctor. A severe burn results in severe psychologic, as well as physical, trauma. From childhood, we have been horrified by stories of fires and their effect on humans. Man and animal possess real, deep-seated fear of fire and its attendant effects. Therefore, it must be remembered that the burn patient needs all the assurance and mental help the medical services can provide.

First, the odors in the burn ward. No one who has not experienced the sensation gained on first going into a ward where several burned patients are being cared for can appreciate this problem. There is a peculiar odor in these wards, and "nauseating" does not describe it. Every effort (including frequent changing of air, distracting odors such as perfumes, etc.) should be made to keep the air in burn wards as "fresh" as possible. Adequate sunlight is a great aid.

The patient is encouraged and aided in keeping a high oral intake, preferably a high protein, high carbohydrate, high vitamin diet. This food may have to be prepared specially for the burned patient. Too often hospital food, though nutritious, has no appeal to the patient. Anything that will stimulate a flagging appetite is employed. Parenteral vitamin therapy is sometimes employed.

There must be at least a weekly check on the patient's hemoglobin and total protein content of the plasma. Burned patients practically all need whole blood transfusions and often. Children can safely be given 500 cc. transfusions, so small amounts of whole blood are not used. We have not had much difficulty in keeping hemoglobin and protein concentrations at an optimum level, except in a few patients. We are inclined to believe that hemoglobin formation is depressed by the absorption of products of disintegration from the burn surface, so an early separation of the slough is desired. If any infection persists, (even B. pyocaneus) in the granulating areas, the hemoglobin may remain low. The frequent use of saline baths is effective in keeping the hemoglobin levels up. We are now conducting bone marrow studies on severely burned patients in an attempt to discover the cause of the severe depression of hemoglobin formation in certain patients, especially in the immediate period after the reception of the burn.

Every effort should be made to prevent contractures by properly splinting all affected joint areas at each dressing. Padded wooden and plaster splints have been employed by us.

One of the chief factors in lowering patient morale is the production of considerable pain in improper removal of dressings, or too frequent dressings. We have recently had referred to us a patient who was in mortal fear of having his burns dressed because he had suffered so much pain with this procedure. Simply placing the patient in a saline bath for 15-30 minutes before attempting removal of old dressings, and using an oily substance as the base of the ointment employed, practically allayed all pain in redressing the burns of this patient.

Several times we have noted that when a burn patient seems to be going down-hill, getting him up in a wheelchair for a few minutes each day gave much encouragement. This can be done when the occlusive dressing method is used.

A word about prevention of infection in the burn site. These large denuded surface areas will almost *certainly* become infected if the medical and nursing personnel attending to the details of bathing and dressing these patients fail to take every precaution to prevent mouth-borne infection. To our minds, the most important single factor in the prevention of infection of these areas *is the masking of all persons* who come in contact with these patients when the burned areas are uncovered.

Too much thought cannot be devoted to the problem of proper nursing care for burned patients. These nurses should be young, strong, kind, and sympathetic to the patient's requests and needs. If the nurse has these qualities, to her will go much of the credit for the successful treatment of these patients.

Caring for many burn patients is fatiguing, mentally and physically, for nursing and medical personnel, and considerable rest from such work may be required at times. The surgeon who treats many burns for months at a time may at times find himself experiencing bouts of a peculiar depression, from which he had best relieve himself by a short

vacation if his efforts are to be fruitful. Many nurses have told the speaker of similar experiences.

Once the granulation sites are free from all slough and are uninfected, the plastic repair of the burn sites can proceed.

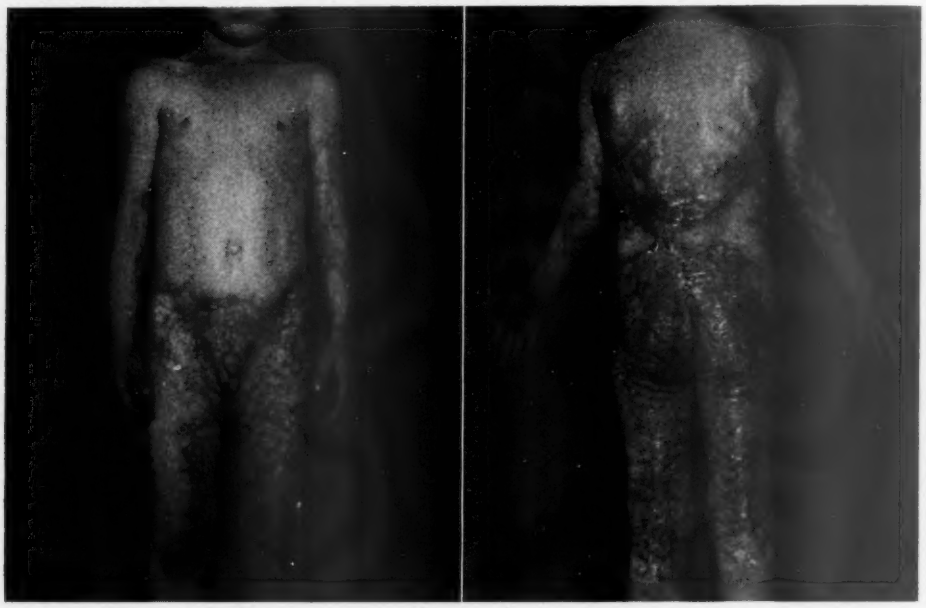

Fig. 1 (a & b).—Anterior and posterior views of 6 year old boy on whom small deep grafts (J. S. Davis type) were used. Boy is back at school with complete function of hands and arms 9 months after original burns.

SKIN GRAFTING IN BURNS

Two relatively simple methods are available for the repair of large skin defects caused by whole thickness loss of skin in severe burns (in certain areas, so-called pedicle or sliding grafts must be employed for technical reasons. These are not considered in this paper.) These simple methods are (a) pinch grafts and (b) split-thickness grafts.

(a) *Pinch Grafts*

These small grafts may be of the thin (Reverdin) or thick (J. Staige Davis) types. We prefer the small, deep graft of J. Staige Davis, and have uniformly secured better results with it than with the Reverdin graft. They are used now only in burn patients who have lost so much skin that split-thickness grafts cannot be considered, or in grafting infected areas. In severe burns we are often left with no choice of donor site but must use what viable skin is left. This technique should not be employed in an haphazard manner, but in a systematic well-considered program for the individual patient. The technique is so easy to learn that the beginner is apt to feel that he can get good results in pinch grafting without any real effort; nothing can be farther from the truth. (The reader is re-

Fig. 2.—Photograph showing original extent of burns in patient shown in Fig. 1. Photograph taken 5 days after severe burns had been received due to clothes catching fire. All the area covered by the pressure bandages except the antrior right half of chest was involved.

ferred to a good description of the techniques of pinch-grafting in Horsley & Bigger's Manual on Operative Surgery[4]).

Fig. 3.—Evidence of poor cosmetic result in widespread, deep burn in young colored male. Original burns involved posterior portion of body as well as that shown.

Fig. 4.—The Padgett dermatome. A split thickness graft is being removed from the Dermatome.

Fig. 5.—Split thickness graft has been placed on a backing of fine mesh sulfanilamide gauze. When the pattern is cut free the graft and gauze are sewn in place on the burned surface.

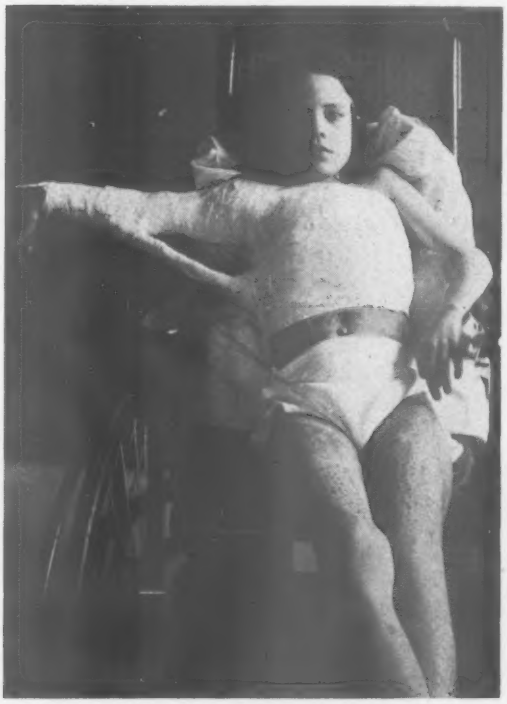

Fig. 6.—The type of abduction apparatus used immediately after grafting of the axillary space. In this manner contractures are eliminated.

There are some writers who intimate that there is no longer any place for the pinch graft in the plastic repair of severe burns. This we believe to

be hardly true because with modern methods of burn therapy many burn patients are being saved in whom no other method but the pinch graft can be used. There is simply not enough skin surface left to employ any other method of skin grafting. This is especially true in children.

In Figure 1 is shown the result in a 6 year old child on whom pinch grafting was done. In all, eleven different operations had to be carried out.

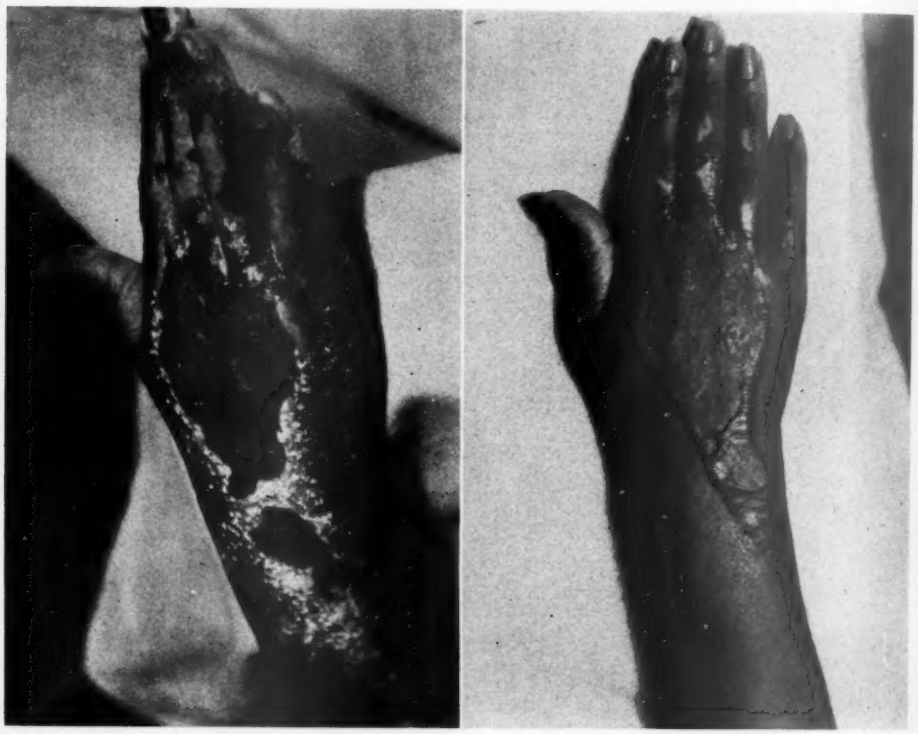

Fig 7 (a & b).—Result with split thickness grafts in a severe mangle burn of the hand. Postoperative photograph taken 5 weeks after grafting.

The original burn involved (Fig. 2) all the area covered by pressure bandages except the right anterior half of the chest. The functional result is excel-

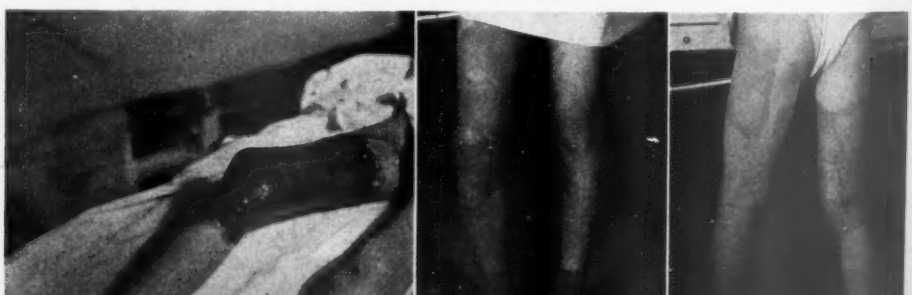

Fig. 8 (a, b, & c).—Severe burn of knee and popliteal area treated with split thickness grafts. On the right leg can be seen the healed areas of the dermatome donor sites.

lent. This child is in school for full attendance exactly nine months after the burn was received. In Figure 3 is seen the final result in a young colored man who was pinch-grafted on six different occasions.

It will be noted that the cosmetic result is relatively poor with pinch grafts. This is due to the fact that connective tissue growth with scar formation and contraction proceeds so much more rapidly than the outgrowth of epithelium from the implanted pinch grafts. So in pinch grafting the cosmetic result may be poor, but the measure is *life-saving* in widespread burns.

(b) *Split-Thickness Grafts*

It is proper to emphasize that the best results, cosmetic and functional, in the plastic surgery of burns are obtained with the so-called split-thickness grafts. These can be cut from the donor site by several techniques, but most general surgeons can best develop skill in securing split-thickness grafts by learning to use the Padgett dermatome (Fig. 4). This instrument allows the surgeon to secure grafts of 8x4 inches, of almost any thickness he desires from about .008 in. to .028 inches thickness. After these grafts are cut we have always placed them on a backing of fine mesh sulfanilamide-in-oil gauze which is sutured with the graft to the granulating surface (Fig. 5). All grafts are perforated before

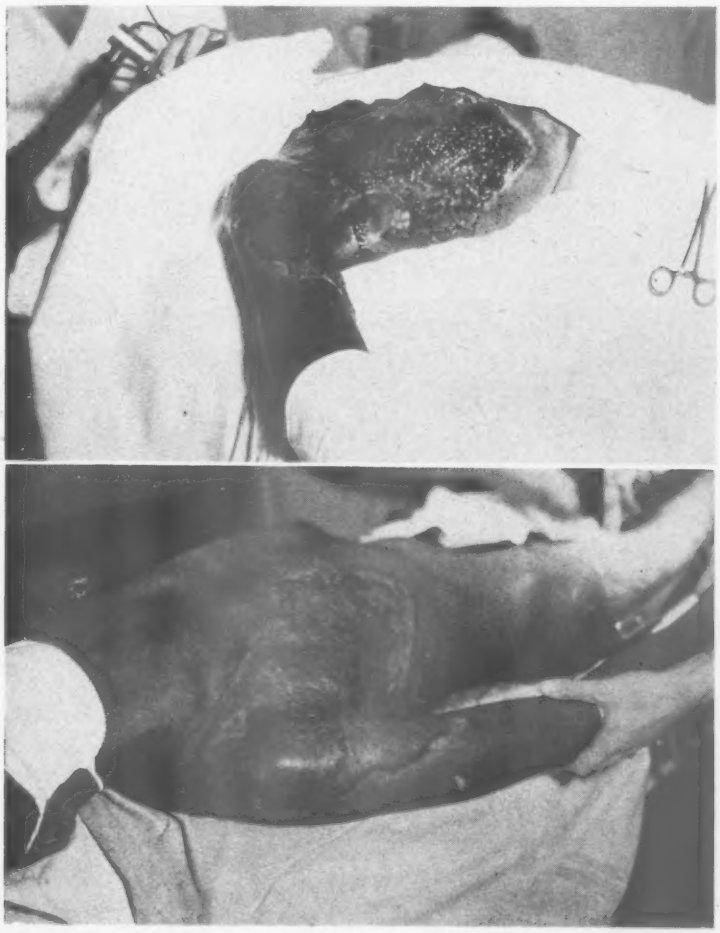

Fig. 9 (a & b).—Severe burn of chest and axillary space treated by split thickness grafts. Patient's arm kept in abduction until healing was complete.

they are sutured in place with a running simple suture of fine silk. By employing a fairly large number of simple interrupted Lembert fine silk sutures through the body of the graft we have been able so far to dispense with bulky pressure dressings which employ sea sponges, etc. The grafts are simply covered with layers of gauze and held firmly in place by pressure bandages. No saline dressings are used. Splinting and, in some cases, plaster casts are used to prevent motion of the grafted surface (Fig. 6). The sutures are removed on the fifth postoperative day. Vaseline gauze-pressure dressings are reapplied. With a successful "take", for example on the hand (Fig. 7), motion can be started on about the 14th postoperative day. After all dressings are removed, the patient is instructed to rub the grafted surface each day with lanolin ointment. Physiotherapy under proper supervision is started at about the 18-21 postoperative day.

When joint areas are involved, every effort is made to use split-thickness grafts, because the mobility of the joint is better with this graft than when pinch grafts are used (Fig. 8). In the case of joints, proper splinting during the preparation period for grafting is very important so that contractures are prevented. This is extremely important in burns about the elbow and the axillary fold (Fig. 9). When there is widespread loss of skin in burns of the lower leg, especially encircling burns involving the calf, the dermatome graft should be used. Postoperatively, one sees much less tendency to ankle and foot edema after grafting procedures on the lower leg when the split-thickness graft is used (Fig. 10).

In probably no other place than the face is it so important that a split-thickness graft be used. Only with such a graft can a proper cosmetic result be obtained. If there must be reconstruction of ear or nose structures, these patients should be treated surgically by an adequately trained maxillo-facial specialist.

In large area skin defects in patients where adequate amounts of normal skin are left to secure split-thickness grafts some of our most gratifying results in severe burns have been obtained. Figure 11 illustrates the loss of skin in a 59 year old man. Split-thickness grafts were employed on five different operative occasions. At a single operation 4 or 5 drums of skin may be cut. When large areas of skin are to be grafted at one operation the time of the operation and anesthetic period (3-4 hours) is necessarily long. We have been pleased to note the general better state of the patient when grafting is done under local anesthesia than when an inhalation anesthetic has been used for an extended period of time. When 4 to 5 drums of skin are cut at one operation, it is important to transfuse the patient with whole blood immediately after the operation.

Fig. 10.—Result in use of a split thicknes graft in complete circular burn of lower leg in a 60 year old man. Photograph taken 4 months after grafting.

Between operations in such cases, after the sutures are removed on the fifth postoperative day, the saline bath and vaseline gauze pressure dressing routine is carried out every fifth day, just as in preparing the burn site for skin grafting. Grafting is repeated every 2-3 weeks until the granulation sites are completely covered. The knees and elbows are kept splinted until physiotherapy can be started.

It is important that a word of caution about the treatment of dermatome donor sites be mentioned here. Several surgeons have discarded the dermatome because of very slow or non-healing of the donor site. Usually in these cases the donor site has become infected, and one is left with a problem almost as difficult as the original burn. It is our impression and experience that the donor site dilemma in dermatome grafting has arisen because of removal of the initial dressings of this area at too early a date. Our only experience with donor site infection has come when some member of the house staff has either allowed the donor site to become wet (and infected) at the time the sutures are removed from the grafting site, or has removed the primary dressing too early. We employ regularly sulfanilamide-oil pressure dressings on the donor site. This should be left completely alone for 14 days. When the primary dressing is removed, healing is almost complete. As soon as possible, the donor site should then be left uncovered. If an oily dressing is kept on continuously, the donor site epithelium becomes macerated, may then break down and become infected.

We have so far not felt it wise to employ a healed donor site for a second graft within less than 5-6 weeks.

With these methods of plastic surgery, the great majority of severely burned patients can be grafted soon after the burn has been received. Generally, in widespread burns, the granulation sites will be ready for grafting not later than 4-5 weeks after the patient is burned. A delay longer than this simply invites trouble; unsightly scarring or unnecessary contractures will certainly result if grafting is delayed. *No magic ointment will restore skin when the burn is large and deep.* Adequate results in severe burns are obtained only with *early* and proper skin grafting.

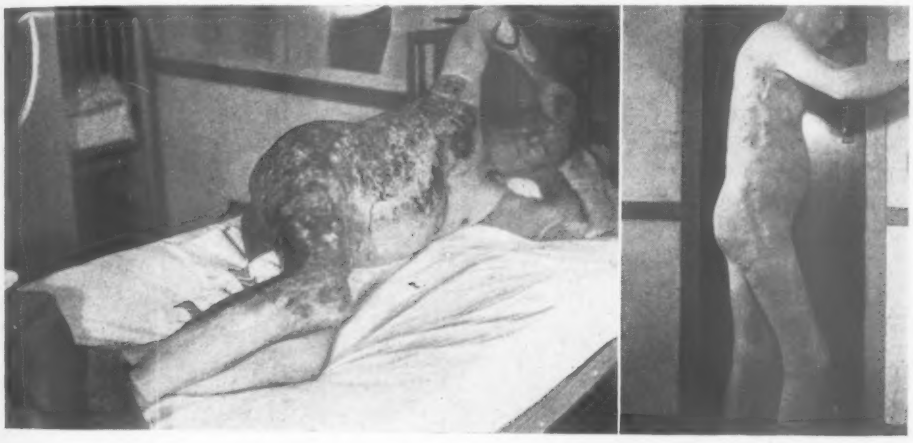

Fig. 11 (a & b).

(a) Severe deep third degree burns shown immediately after entrance to hospital. Burns extended from the axillary space to below the knee and to the midline anterior and posterior. There was complete sloughing of the skin and fascia in the burn areas.

(b) Results with split thickness grafts 4 months after discharge from hospital when patient was able to resume light work.

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DISCUSSION

LT. COMMANDER ARTHUR J. MOUROT, M.C., Norfolk Naval Hospital: I wish to congratulate Dr. Evans on his excellent results and his paper.

Formerly burn patients were admitted to any "dirty"

surgical ward and their care usually fell to an interne. But experience has proven the value of an experienced and cooperating burn team. At Norfolk Naval Hospital we have had such a team consisting of a general surgeon, a plastic surgeon, a laboratory technician and a physiotherapist since December 1, 1942. All burn patients are admitted to a special burn ward where every facility is available for their care and treatment.

We have used Dr. Evans' method of dressing burns and found it excellent in treating second degree burns, but rely more on early skin grafting when third degree burns are present.

Our cases are mostly patients with "flash" burns who are brought into the hospital one to four weeks after their initial injury. A high percentage of these cases are infected with hemolytic staph. aureus and hemolytic streptococci when they are admitted. We have found, both clinically and experimentally, wet dressings with 2 per cent acetic acid or azochloramide the best agents to clear up these infections. Even though infection is present, except on the hands and face where split thickness grafts are used, we begin skin grafting during the third week after the injury.

The British surgeons have had extensive experience in treating burns. They also advocate early skin grafting and have had moderate success with homogenous grafts when antogenous grafts were not available.

One aid in treatment of burns we have found useful is the use of ultra violet light irradiation to the burned area daily for several days prior to skin grafting. This stimulates granulations and aids in sterilizing the area to be grafted.

Before grafting is attempted the general condition of the patient must be built up as near normal as possible. Our patients receive a daily diet of 5000 calories which contains 200 gms. of protein. In addition they receive 6 to 8 eggs daily not only for their vitamins but mostly for their sulfur, adequate doses of ferrous sulfate, parenteral liver extract and multiple vitamin capsules. If the patient refuses or is unable to take this diet, a Miller-Abbott tube is passed and nourishment is given through the tube.

We keep the red blood count above 3 million cells and the Hb. above 65 per cent with frequent transfusions of whole blood. The plasma protein is kept above 6 mgm. per cent with blood plasma and amino acids Occasionally, we have difficulty in locating veins as most of our patients have the neck, arms and ankles burned. In these cases we give transfusions either intrasternally or into the corpus cavernosus of the penis.

Before skin grafting is attempted an examination of the patient is made to determine not only what is to be done immediately but what unburned skin will be required for future reconstruction or plastic work on the face, ears and hands. Whenever such work is necessary, we preserve the skin of the abdomen as this location is most suitable for pedicle or flap operations.

Split thickness grafts are always used on the face and dorsum of the hands, but as Dr. Evans has stated, many patients do not have sufficient unburned skin to graft all areas by this method. In these cases we have found Corachan grafts superior to the "pinch" graft. Its advantages are: (1) The donor area is only half as large as that needed for pinch grafts. (2) The donor area is sutured and heals by primary union. (3) Corachan grafts are easier and quicker applied. (4) Both the donor area and the grafted area are smoother and have a better cosmetic appearance than when pinch grafts are used.

We cover our grafts with perforated cellophane over which is placed gauze or mechanic's waste moistened with 25 per cent glycerine in normal saline. Compression is maintained with a cotton elastic bandage or cast.

I am very pleased that Dr. Evans is doing bone marrow studies to determine the etiology of the marked and rapidly developing anemia seen in severely burned patients. Some investigators have stated that this anemia is due to increased fragility of the red blood cells, but we have been unable to substantiate this finding. We have seen no case of clinical jaundice, hemoglobinuria or pink plasma. I stated in a paper written in January, 1943, that I thought this anemia is due to a toxin generated by the burned area which decreases the production of red blood cells and is not due to increased destruction of these cells. Naval regulations prevented me from making bone marrow studies.

In spite of using rigid sterile technique in dressing and redressing our burn patients, slightly more than 50 per cent of our third degree burns become infected. Meleney reported a similar high percentage of infection in 347 industrial burns. All of his cases were treated early, by skilled surgeons, under ideal conditions. Military surgeons, with few of these advantages, can little hope to lower this high percentage until some new drug or method of treating burns is discovered.

DR. EVANS, closing the discussion: I should like to thank Commander Mourot for coming so far to discuss this paper and for his excellent and intelligent discussion of this serious problem. One of the most gratifying observations one makes in going around to various Navy and Army hospitals is the exceedingly fine work being done by the surgeons attached to those hospitals on the problems of burns, shock, traumatic wounds, and so forth —not so much the fine technique but the fine understanding of sound underlying surgical principles.

Appropos to the serious anemia that does occur, recently we have studied in three patients the effect of liver extracts in such anemia. It is interesting to note that in these patients the reticulocyte count was zero before the administration of liver extract, but in three days had risen to five or six per cent. So there is some principle we are overlooking; and perhaps, as Commander Mourot has pointed out, liver therapy may be highly important in this peculiar anemia.

I was very interested to see Commander Mourots photographs of the Corachan graft, which, as he stated, was first used in the Spanish Civil War by one of the surgeons attached to the Loyalist group.

DEMEROL—A SUBSTITUTE FOR MORPHINE IN SURGICAL PRACTICE*

CHARLES STANLEY WHITE, M.D.,
Washington, D. C.

Some derivative of opium, and morphine in particular, has been the remedy of choice for the relief of pain for centuries, and no drug has supplanted it. Morphine, not unlike some personalities, has few evil traits that compromise its noble virtues. It has been next to indispensable to the physician. We believe the nearest approach to a substitute for morphine is Demerol, a synthetic drug in no way related to papaver somniferum.

Demerol is the first product of uniform chemistry which combines the spasmolytic property of atropine and the analgesic component of a morphine-like property. It was introduced by Eisleb and Schaumann[1] in 1939 under the trade name of Dolantin, but pharmacologically it is ethylmethylphenylpiperidinecarboxylate. It will be known in this country as Demerol. It is a white, crystalline substance, slightly soluble in water, with a strong alkaline reaction and a bitter taste. The hydrochloride is used for medical purposes.

Perhaps the most thorough and elaborate pharmacological studies available are those by Dugand and Heathcote of the Welsh National School of Medicine of Cardiff. We shall freely quote from their contribution, as there exists at present no better critical survey. Their experiments included action on erythrocytes, paramecium, the isolated heart, the rabbit, striated muscle, unstriated muscle, guinea pig intestine, anesthetized animal, intact frog and mouse. They state in reference to action on the mouse, "In general the effects of dolantol (demerol) on the central nervous system of the mammal may be explained as cortical stimulation followed by depression, together with a primary depression of the medulla. There is no evidence of any narcotic action of the drug as the animals show no symptoms of central depression until very late in the course of poisoning, when the degree of asphyxia present would be amply sufficient to account for it. With regard to the power of relieving pain claimed for the new drug, it is somewhat doubtful if any sound conclusions as to its possible action in this direction in man can be based on experiments in mice. Nonetheless, it was observed that it rendered the animals less perceptive of what may be regarded as painful stimili."

Among their conclusions they write, "It is non hemolytic and has little action on unicellular organisms. It is a depressant to all forms of muscular tissue, striated, cardiac, and non-striated. As an anti-spasmodic drug it might well be found effective, in view of its antagonism to both para-sympathetic and plain muscle stimulants.

"It is relatively non-toxic, though it lowers blood pressure and depresses respiration. It is non-irritant and can be given subcutaneously, intramuscularly or intravenously. It is not narcotic in action but rather the reverse. There is evidence that it lessens sensitivity to pain in the lower animals."

Demerol (Dolantin in Europe) has been used extensively in Germany since its introduction in 1939, and numerous reports from that country attest to its efficacy in the hands of internists and surgeons. Schafer[2] had a large number of surgical cases in which he replaced morphine with Demerol. He states, "Dolantin (Demerol) does not act as an hypnotic: where a drug was desired to induce sleep, one of the barbiturates was given. In very severe pain, the effect of Dolantin—100 mg.—intramuscularly, was satisfactory and lasted about three hours. In less severe pain it lasts as long as seven to eight hours. Habituation or cumulative effect was not observed in a single instance. In most cases Demerol may replace opium."

Schlungbaum[3] summarizes his experience as follows: "It possesses reliable spasmolytic effect, a strong analgesic effect, and frequently a sedative effect. It is tolerated locally and generally very well, particularly by children. There is no danger of cumulative action, no diminution of the effect if given repeatedly, and no danger of addiction."

In this country, Batterman and Milholland[4] and Batterman and Hemmelsback[5] report the extended use of Demerol, and summarize one contribution as follows:

"(1) Its spasmolytic action makes it ideal for the relief of conditions due to smooth muscle spasm in which morphine is pharmacologically contraindicated. (2) Its rapid dissipation tends to offset undesirable cumulative effects such as respiratory de-

*Read before the annual meeting of the Medical Society of Virginia, at Roanoke, Va., October 25-27, 1943.

pression and urinary retention. (3) Prolonged use of Demerol may lead to the development of habitualism, but it appears to possess a lesser liability than morphine for the development of physical dependence."

We have been using Demerol in a surgical practice for more than a year and, while we have not kept a detailed report of each individual dose or patient, we have well-defined impressions in a series of several hundred cases. We have furnished the drug to some confreres and have their reports, several of which we consider particularly illuminating.

For the relief of pain, particularly of a spasmodic character, such as renal or biliary colic, it is a very satisfactory substitute for morphine. The dose has been 100 mg. hypodermically or intramuscularly. The pain has been controlled in ten to twenty minutes and relief has lasted two to four hours. In a few cases, a sense of flushing or dizziness was noted, but neither nausea, vomiting, pruritis, or excitation developed in any case. Demerol does not induce sleep, but sleep frequently follows the relief of pain. Following operations, it is given every three or four hours during the first 24 hours, its administration being left to the discretion of the nurse—then about twice in the next 24 hours. Thereafter, mild sedatives are substituted and usually suffice.

We have found Demerol particularly useful in those patients who tolerate morphine poorly or have an idiosyncrasy for the drug. In not a single instance have we met a symptom, following its use, which was alarming. If any idiosyncrasy exists, we have failed to meet it in over a thousand administrations. In about ten per cent of the cases in which it is used, it did not prove as effective as morphine. It is very possible the dose was too small, but we have leaned toward the cautious side. It is our impression that 100 mg. is about equivalent in action to 1/6 gr. morphine and 1/100 gr. atropine combined. We believe 125 or 150 mg. will prove to be a better dose, but do not advise this dosage at present. It may be used orally in tablet form. Clinical experience will be the answer.

We have not seen the depression in respiration, cyanosis, pruritis or excitation which is occasionally noted after the administration of morphine following the use of Demerol, possibly because we have been satisfied with a conservative dosage.

Our experience is limited almost exclusively to surgical cases. In about fifty cases in which it was used as a part of the preparation for a general anesthetic, it seemed to relax the patient but did not produce narcosis to any degree. Combined with one of the barbiturates, seconal for instance, it formed a most satisfactory substitute for morphine and atropine, and we believe it can be relied upon to eliminate the excitation and nausea that sometimes follows the initial dose of morphine.

Post-operatively, we have found it most efficient, and, as we have stated, we believe a wider experience will dictate a little larger dose than 100 mg.

We have used Demerol for several months in chronic surgical cases without increasing either the quantity of the drug or reducing the interval between doses. We furnished Demerol to a physician whose wife had metastasis in the spine and pelvis secondary to carcinoma of the breast. He found that she could not tolerate the large doses of morphine or Schlesinger's solution necessary to relieve pain, but found that Demerol was the only drug which relieved pain and at the same time did not cause nausea. It was used to the exclusion of all other analgesics during the last few months of her life.

Another case in point is that of a nurse who had her second abdominal operation. In the first operation, she found relief from pain with morphine, but its administration was attended with nausea. In her second operation she had two hypodermic doses of Dilaudid, 1/32 gr. each, with incomplete relief. Demerol was substituted without her knowledge, but she immediately detected the difference and insisted on its use. She stated that relief of pain was complete in ten to fifteen minutes with a feeling of complete relaxation, at times attended with a sensation of a mild subcutaneous warmth.

Concerning creating dependence on the part of the patient—addiction or habituation, in other words—there seems to be some difference of opinion. One thing is certain; its use does not create that insatiable desire for its continuation that is so common with opium derivatives. The obvious explanation is the failure of Demerol to produce euphoria, at least in the hospital patient, and this is an asset rather than a liability. It merely relieves pain and does not bring that sense of well being and exaltation that follows the habitual use of opium. Demerol will not replace morphine in those addicted to its use.

In conclusion, we would stress several points: Demerol has an analgesic and spasmolytic action,

resembling combined action of morphine and atropine. It is not a sedative or somnifacient in their strict meanings. Sleep often follows its use by the relief of pain.

It is well combined with a barbiturate in the preoperative preparation. It is distinctly indicated in pain due to spasm of involuntary muscles such as renal and biliary colic. It is quickly eliminated by the liver. It is not toxic in the dose recommended—100 mg. hypodermically or intramuscularly. It can be given by mouth in relatively larger doses. There may be a slight risk of habituatism but nothing approaching the tendency attached to morphine usage.

Its pharmacological action has been thoroughly studied and it can be recommended as a safe drug for the conditions enumerated. In other branches of medicine, reports indicate it has proven a most welcome addition to our materia medica.

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1801 Eye Street, Northwest.

DISCUSSION

DR. H. H. WARE, JR., Richmond: Dr. White is to be congratulated for presenting a report of his observations on the use of demerol in a large group of cases. It seems evident that demerol is another valuable addition to the list of drugs used for the relief of pain; and it apparently has very few unfavorable reactions. The absence of unfavorable reactions increases the value of this drug in gynecological and abdominal cases.

You may be interested to know what this drug will do in obstetrical cases. Drs. Roby and W. R. Schumann, of Boston, reported its use in 112 cases. Unfortunately, they were unable to show what the drug will do when used alone, because they gave scopolamin along with it, so that the effect was almost like twilight-sleep. They think that demerol is safe in obstetrics. Drs. Gibson and Dixon, of Baltimore, reported 150 obstetrical cases in which demerol was used. They reported that 54 primiparas received 100 mg. or more, and the average duration of labor in this group of cases was four hours and fifty-four minutes after the drug was given. In the cases Drs. Dixon and Gilbert report, the drug was given alone in 70 cases in an attempt to evaluate the effect of this drug on the babies. In doses of from 100 mg. to 400 mg. no effect on the baby was noted. It was their impression that the drug probably hastened the process of labor, perhaps by relieving the patient of pain, and allowing her to progress a little more rapidly because she could use her uterine contractions to better advantage. They found that the drug was probably most satisfactory when given intramuscularly, although they gave it orally in some cases. Larger doses have to be used, however, when it is administered orally. The incident of post-partum hemorrhage was not increased when demerol was used, and the third stage of labor was short.

I enjoyed Dr. White's paper and wish to thank him for presenting the results of his investigation.

DR. RICHARD MASON, The Plains: I should like to ask Dr. White, first, what he thinks of this new drug in regard to its effect on the secretions, as compared to morphine and the other opiates. Does it produce constipation and that sort of thing, as the opiates do?

I should also like to ask him where we could obtain this drug if we wanted to use it.

DR. WHITE, closing the discussion: I wish to thank Dr. Ware for his remarks.

To Dr. Mason I would say we have not noticed the constipation that follows the use of morphine, and I do not think demerol has much effect on the secretions. It may diminish them slightly. I am not qualified to express an opinion on the effect on the nose and throat secretions.

It is hoped the commercial package will be available shortly.

RECENT PROGRESS IN PHYSICAL MEDICINE*

RICHARD KOVACS, M.D.,
New York, New York.

The last 25 years have brought spectacular development of a large variety of physical treatment measures as well as their widespread employment by the medical profession. Physical therapy became the cornerstone of physical restoration during and after World War I, and, as a result, in the present gigantic global conflict, the American Army has moved physical therapy from base and reconstruction hospitals right up to station and field hospitals all over the world. A crying demand exists now for more physicians and more technicians trained in physical therapy to administer such treatment to the countless thousands of injured and otherwise disabled. In war plants as well as in most general hospitals physical therapy departments have become indispensable as aids in the routine treatment of traumatic, arthritic, neurologic and many other special conditions.

In presenting the highlights of the more recent advances in this branch of therapeutics, it appears practicable to consider the question from two angles: the first, newer physical therapy methods; and the second, methods and techniques applicable to special fields in medicine.

THERMOTHERAPY

Thermotherapy or the employment of heat in its various forms is still the most universally applied physical treatment method. Heat when employed in mild intensity acts as a sedative on sensory and motor nerves; in more intense dosage it helps to accelerate circulation and helps in the absorption of products of inflammation; finally, in case of thermolabile organisms as the gonococcus, heat in sufficient intense degree acts as a bactericidal agent without impairing the human organism. Two forms of conductive heating have become increasingly popular in recent years, the whirlpool bath and the paraffin bath. The whirlpool bath, consisting of water at a temperature of 105° to 110° F. which is kept whirling in a small tank by its own pressure or by a motor, combines gentle friction with sustained heat and also allows active exercise under water, especially in recent traumatic and arthritic conditions with swelling and limitation of motion. The paraffin bath employs melted paraffin at a temperature from 110° to 125° F. preferably controlled thermostatically; it is more useful in chronic traumatic and arthritic conditions.

Short-wave diathermy was hailed, a few years ago, as a new thermal method of specific bactericidal and selective heating effects. Seasoned clinical and laboratory investigation has divested short-wave diathermy of these enthusiastic claims, but has fully established its value as a fairly safe agent for deep tissue heating, offering the convenient new technics of air spaced electrodes and of inductance coil heating. Efforts to introduce dosimeters into short-wave diathermy which will estimate dosage in the same manner as the milliammeter in long-wave diathermy, have been unavailing; as a matter of fact, the older method of heating by metal contact plates may be still considered superior in treating bursae and joints in such locations as the head or neck, where unnecessary heating of adjacent structures is to be avoided, or in treating heat sensitive patients.

Artificial fever therapy developed in the United States as a direct outgrowth of diathermy; later hyperthermy by air-conditioning and by hot water spray developed. At this time it is generally agreed that various methods of fever therapy can produce equally good results, as long as there is a suitable combination of elevation of temperature and its retention by insulation chiefly in cabinets. The original spectacular results in gonorrheal infections have been largely superceded by similar results by the much less cumbersome use of sulfa drugs; nevertheless, fever therapy still plays an important role in cases resistant or intolerant to sulfa medication. In cerebrospinal syphilis and its sequelae, in chorea, intractable bronchial asthma and selected rheumatoid conditions, artificial fever therapy has become a standard method of treatment, with a general tendency towards the use of less severe fevers, in degrees from 103° to 105° maintained for 3 to 5 hours.

*Read before the Richmond Academy of Medicine, Richmond, January 25, 1944.

HYPOTHERMY

Hypothermy or the therapeutic use of cold has come to the fore in recent years, largely stimulated by clinical research of Fay and Smith. Here, again, the original claims for some specific action in inoperable malignancies have been abandoned, but, on the other hand, the scope of employment of hypothermy in military and industrial surgery and in peripheral vascular disease is still expanding. These uses are chiefly based on the fact that the employment of cold lessens the oxygen need of cells and decreases local metabolism; therefore, in treating gangrene in cold injuries and in burns, mild refrigeration helps recovery. On the same grounds a new conception of shock substitutes cold for heat in its treatment. For amputation of gangrenous extremities, an efficient technic of refrigeration anaesthesia has been developed. The techniques of hypothermy are still under development, at present either direct packing with ice or mechanic refrigeration being employed.

ELECTROTHERAPY

In the field of electrotherapy, besides the development of short-wave diathermy, recent progress concerns itself chiefly with the extended use of the time-honored method of iontophoresis or ion-transfer by galvanism and with the new method of electro-shock therapy by a low frequency current applied to the brain. As to ion-transfer, it has been shown anew that by the application of the basic law of electrophysics, "like charges repel, unlike charges attract", electro-positive and electro-negative substances can be introduced through the skin and that such electrophoretic introduction of foreign substances into the skin is followed by diffusion, adsorption and precipitation; also, that effects on deeper tissues are possible with drugs controlling pathways between the skin and internal structures. Extensive work has been done with vasodilating drugs, such as histamine and the choline derivatives, notably mecholyl. Favorable clinical results are being reported with both of these drugs in vascular spasm and fibrositis, neuritis, joint exudates in traumatic and rheumatoid arthritis, also in skin ulcerations. Histamine exerts a more intensive reaction and must be used for short applications only; it is generally preferred in applications to muscles; mecholyl requires more prolonged application and may exert systemic effects. Copper ionization has been favorably reported in fungous infections of the hands and feet. The recent literature contains favorable reports on the relief of migraine and headache by histamine ion-transfer, of severe asthma by epinephrine ion-transfer, or arthritic pain by mecholyl and histamine ion-transfer, of muscular spasm by aconitine ion-transfer and of keloids and scleroderma by iodine ion-transfer.

Concurrently with ion-transfer by the galvanic current, renewed interest has been shown in the form of local or general body treatment by hydrogalvanic baths. Such treatment has been found useful in generalized, as well as local arthritic and neuritic conditions, in war injuries and nervous exhaustion following war strain.

The method of inducing convulsions by means of an alternating current applied to the brain came about as an evolution from the more hazardous drug administration for shock therapy in mental disorders; it repeats the similar transition from drug therapy to physical therapy when physically induced fever therapy largely replaced malaria therapy. Electric shock therapy has proved especially applicable to the early stages of depressive mental conditions, in psychoses associated with alcoholism and in other toxic-organic psychoses; it has also been reported effective in acute mental depression due to the war, formerly misnamed shell-shock; the majority of patients with a good previous personality have been showing rapid improvement under such treatment.

ULTRAVIOLET RADIATION

Ultraviolet radiation has found a new field of applicability for air sterilization of operating rooms and for prevention of cross-infection in children's wards. Generators emitting almost exclusively the short ultraviolet radiation of 2,537 Angstroms serve for this purpose and the same type of radiation emitted from single treatment units has been also used with good success in superficial skin infections and for stimulation of sluggish wounds. After resumption of manufacturing for civilian needs and more clinical research there will be undoubtedly more interesting development in the field of actinic radiation.

HYDROTHERAPY AND SPA-THERAPY

The development of under water exercises in therapeutic pools has brought hydrotherapy into ex-

tensive use again. Originally introduced for the redevelopment of muscles weakened by infantile paralysis and unable to work against gravity outside of the water, pool exercise has been found useful in treatment of the sequelae of many traumatic conditions, of hemiplegia and chronic arthritis. The dramatic effects of early treatment by the Kenny method have definitely helped to curb the tendency of erecting too many costly pools, for much of this type of work can be done intelligently and more inexpensively in smaller units of the Hubbard tank type.

Spa-therapy, a long neglected field of combined physical therapeutic and medicinal activity, has been brought into the foreground of interest by two important developments of recent years. Informed physicians have demanded for a long time that the medical profession as a whole should take more active interest in American Spas, as potential assets of our national health system; as a result, three years ago the American Medical Association created a Committee on Health Resorts with the aim to survey American Spas and endeavor to bring their service to the sick to acceptable uniform standards. Quite recently, the matter of more extensive and more effective use of our Spas has been precipitated by the fact that the Army, Navy and Veterans' Administration took over a number of well-known resorts for active utilization in the rehabilitation of the war disabled. It is to be hoped that under the impetus of these new developments a new era of a more general and more intelligent use of our health resorts will arise, instead of their misuse by the idle rich as society playgrounds or by commercial exploiters for much valueless treatment.

EXERCISE

The institution of a nation-wide program for rehabilitation of those disabled by war and war-connected industrial activity has also brought about widespread attention to the importance of exercise and physical fitness. Instead of much of the cumbersome passive therapy apparatus of former years, the tendency is to use early active exercise without any apparatus, and later either active exercise apparatus of simple construction or various devices of the curative workshop principle, aiming to restore function as well as the individual's habit of work. All this leads to an increased tendency to combine physical therapy with occupational therapy under competent medical direction.

Concurrently with the development of newer methods of physical medicine and better understanding of the time-honored ones, certain trends became more and more pronounced in the therapeutic management of some of the conditions in which physical therapy plays an important role.

THE KENNY METHOD

In the early treatment of infantile paralysis, the physical treatment procedures evolved by Miss Kenny evoked much professional and popular interest. They consist briefly of abandonment of all rigid immobilization, of early treatment of all affected muscles by moist hot applications and by the institution of early carefully guided exercise. Extensive clinical observations corroborated that such treatment tends to relieve pain and muscle spasm and almost abolishes, or at least greatly diminishes, the incidence of contractures, joint deformities or spinal curvatures. However, it does not decrease the extent of late paralysis. The fairly general acceptance of the Kenny procedure revolutionized the early treatment of infantile paralysis as much as the discontinuation of prolonged immobilization changed the treatment of fractures some years ago. On the other hand, the new "conception" of poliomyelitis announced by Sister Kenny involving such terms of "mental alienation" and "incoordination" does not seem to have found as much corroboration by intense laboratory studies, as did the clinical results claimed for this method of treatment.

PERIPHERAL NERVE INJURIES

In the management of peripheral nerve injuries much recent study was devoted to determine the value of early, intensive stimulation of muscles by electricity. There are now several well supported newer experimental studies on record that such treatment is of definite value in conserving the function of muscles and in hastening recovery. In all cases of peripheral nerve injuries, whether suturing is done or not, physical therapy must be promptly initiated so that when the nerve regenerates it will activate a mechanism capable of adequate movement. In the various types of traumatic neuritis, including Bell's palsy, early and consistent use of physical measures, proper splinting, mild heating,

and later suitable exercise have gradually become to be regarded as standard forms of treatment.

CHRONIC ARTHRITIS

In the treatment of chronic arthritis and rheumatoid conditions, physical measures have found a steadily increasing appreciation, in direct ratio to the decline of faith in the wholesale removal of supposed foci of infection and in allegedly specific vaccines. The present generally followed plan of treatment of chronic arthritis includes the combating of the known etiologic factors as well as the employment of all effective means for the restoration of function and relief of pain in the joints. It is universally agreed that physical measures have the unique capacity of influencing the general condition of arthritics as well as their local changes, if the latter are not too far advanced; the extent of stimulation as well as sedation by physical measures can be fairly well regulated individually and there is a large choice of time-proven as well as newer physical measures available. Most of these newer physical measures have already been enumerated; thermal measures, the paraffin bath for thickening of soft tissues in hands and feet, either form of diathermy for swelling of larger joints, under water exercises for joint stiffness; counter-irritant measures; mecholyl ion-transfer for stubborn cases of rheumatoid arthritis and neuritic conditions; histamine ion-transfer for rheumatic myositis; finally, the galvanic bath, either locally or generally applied.

Increasing emphasis has been laid in recent years in the properly directed home treatment of chronic arthritis, because of its essentially chronic course and the grave economic problem often created by the length of treatment. In many cases of chronic arthritis, especially the early rheumatoid type, no matter how expertly done, diathermy or ion-transfer applied once or twice a week in a physician's office is not as effective as mild heat treatment applied daily or several times a day, followed by gentle massage and suitable exercise. Heat lamps, paraffin packs and whirlpool baths may be all employed in the home; members of the family may be instructed in a simple massage routine, in putting joints through the fullest possible range of motion and in carrying on suitable walking and postural exercises, provided that there is continuity of active medical supervision and interval treatment at the office.

PERIPHERAL VASCULAR DISEASE

In peripheral vascular disease physical therapy has become an indispensable part of the general medical management. In prevalence of vascular spasm, such as in Raynaud's disease, ion-transfer with vasodilating drugs is being usefully applied; the same method has also been reported favorably in scleroderma and thrombophlebitic indurations. In organic occlusion the best known means for developing collateral circulation are controlled local heating and passive vascular exercise. In early cases often complete functional recovery can be achieved, but even in the presence of ulcerations and gangrene physical therapy presents a fair chance to avoid amputations.

A similar useful and often indispensable role of physical measures can be made in many of the everyday conditions in gynecology, proctology, the genito-urinary field, and in dermatology, ophthalmology and oto-rhino-laryngology, as proven by the increasing number of contributions on the use of physical agents by the specialists in these fields.

COMMENT

In spite of the impressive progress being made in many large centers in both research and clinical application of physical measures, their rational and efficient use by the general medical profession is still far from satisfactory and the problem of education still looms large. A frequent objection voiced by the uninformed is that physical therapists concern themselves with all too many pathological conditions, instead of remaining within a well-circumscribed domain. No such objection is voiced against the similar wide use of drug therapy in all departments of medicine. Dean Sollman stated before the American Congress of Physical Therapy, ". . . although drug therapy and drugless therapy may seem direct antipodes to the superficial thinker, they involve the same principles, evoke the same phenomena, accomplish the same results. They differ only in the means which they employ, of which sometimes the one, sometimes the other is better adapted to secure the desired end. Indeed, the differences between physical therapy and pharmacochemical therapy are no greater than those between radiant and direct heat, or between local and general anesthetics."

The general practitioner should be able to employ

simple thermal and hydriatic measures at the office and at the bedside of patients and to demonstrate and prescribe simple exercise for traumatic, arthritic and other every-day conditions. He should employ more elaborate apparatus only if he has had competent clinical instruction in their use and can himself devote either the necessary time or effectively supervise their application by his well-trained technicians.

Specialists in various fields of medicine, such as surgery, orthopedics, gynecology, the nose and throat, and dermatology will all derive great satisfaction from such physical measures as are applicable to their respective fields, once they acquire theoretic grounding and at least the rudiments of clinical training in their employment.

There is need in every large center of population, and certainly in all large hospitals, for medical men with special training in general physical therapy who are able to render broad service with such modern resources as fever therapy, under water exercise, and some of the electric and light treatments. Special training and aptitude, as well as official support, are needed to carry on clinical observation and experimental research and to check on the claims for the ever-increasing number of new devices.

Unbiased observers agree that much further progress can be expected from physical medicine once it has become possible to overcome the still existing lag in teaching in medical schools and more systematic research work is instituted in properly equipped and staffed institutes of Physical Medicine. The most timely establishment of the Baruch Committee on Physical Medicine with a membership of distinguished clinicians and educators for the survey of the field of Physical Medicine, therefore, marks a potentially important step forward. The published results of this survey will undoubtedly stimulate definite action leading to further progress.

2 East 88th Street.

Georgia Warm Springs Foundation.

The annual report of the Foundation for the fiscal year ended September 30, 1943, reveals that during the year 541 patients from thirty-seven states in the country received treatment, and of that number, 346 patients (or 64%) received financial assistance. These Aid patients received 25,038 hospital days' care, or 79.16% of the total 31,628 days' hospital care given all patients.

Of the 541 patients in residence during the year, 261—or nearly half—were in the age group of 10 through 19 years. Of the remainder, 155 patients ranged from 20 through 38 years; 106 were under 10 years, and 19 were over 39 years of age.

The financial statement discloses that grants received from The National Foundation for Infantile Paralysis, Inc. were: $225,000 for general purposes, for the year beginning October 1, 1943, and $43,480 for educational purposes for the year beginning July 1, 1943. Revenue from patients and other activities at Warm Springs, plus donations and bequests totaled $234,123.36. Excess of expenses over revenue, exclusive of grants, for the year ended September 30, 1943, was $164,146.02.

Organized in 1927 under the guidance of President Roosevelt, the Georgia Warm Springs Foundation is a non-stock, non-profit organization, developed for the two-fold purpose of using the natural facilities at Warm Springs and the skill of a carefully selected professional staff for direct aid to patients; and secondly, to pass on to hospitals and the medical profession any observations or methods of proven merit resulting from research which might be suitable for practical application elsewhere.

No distinction is made in the care or housing of patients, whether they pay their own expenses or receive full or part financial aid, and the particular classification of each is known only to the officers in charge of financial arrangements at the institution. No profit is derived from any patient.

A CASE OF SYPHILITIC PARALYSIS CURED BY FEVER*

J. O. FITZGERALD, JR., M.D.,
Richmond, Virginia.

In 1930 a family consisting of husband, wife and two children became my patients. They were seen at irregular intervals for varied ailments. In 1931 a father-in-law joined the group. He was senile, unable to care for himself properly, and had a positive Wassermann. He was nursed largely by the daughter-in-law. His condition grew worse and in 1933, after consultation, a "Commission" was called and he was committed to a sanatorium for mental diseases, as a paretic.

The family was naturally anxious and excited. Wassermann reactions on blood from each were negative.

Mrs. D. J. (the wife), who was in her late 30's, began to feel badly in June, 1933. She lost weight, was nervous, slept poorly and had some pain through her lumbar region. Her basal rate was found to be above normal and she was advised to rest more, and was started on iodine.

On October 9, 1933, her blood Wassermann was repeated and found negative.

She had improved and was not seen again professionally for about one year when she returned complaining of aching through her lumbar spine. Her x-ray at this time showed arthritis in her lumbar region with spurs. There were periods of comfort interspersed with periods of increased pain through her lumbar region, thighs and legs.

She was seen a few times in May, 1934. In November, 1934, she returned with definite defect in her locomotion and a suggestive gait. Blood was again taken and her Wassermann reaction was "one plus". She was given a series of arsenical injections. In February, 1935, her blood Wassermann was negative. There was improvement in her walking and a definite decrease in her pains. She refused a spinal tap. Mixed treatment was continued through 1935. During this time there were three negative blood Wassermanns.

Here, the family moved out of town and she was not seen again until June, 1936. Her complaints were referred to her spine and thighs; they consisted mainly of pain and upset locomotion. I insisted on a spinal, which she refused, and she failed to return until July, 1936. Her symptoms continued to be her spine and thighs and she walked with difficulty and only with aid, and because of her negative blood Wassermanns she almost childishly insisted her condition was arthritic. From this time until September 3, she had walked only with aid of two people, one on each side, and then with a dragging gait and difficulty.

She gave up all her duties in this period and was generally worse. September 3 she consented to a spinal puncture. Her blood Wassermann was negative but the spinal fluid was positive—being a plus three—and the collodial curve was that of paresis.

She was studied generally and found to be suitable for it and was brought in for general fever therapy. These treatments were given in one of my office treatment rooms.

The patient was in at 8 A. M. Her previous preparation each time was about the same as would be given before a major surgical procedure—laxative, sedative, abundant fluids, NaCl, etc. She was well insulated, using large heavy Turkish towels next to her body surfaces for absorption of excreted fluids. The current was turned on and her body temperature was gradually raised to 103° to 104° F., where it was maintained until 3:30 P. M., when the current was gradually turned off and she was allowed to return to about normal. During the treatment from 1000 to 3000 c.c. of normal saline iced lemonade were given. Sodium amytal was given at the start and again about noon. During the treatments the patient had both myself and a nurse present all the time and both were always immediately available.

Treatments were given 9-15-'36
9-19-'36
9-22-'36
menstruating
10-13-'36
10-17-'36
10-20-'36
10-24-'36
10-31-'36
11- 3-'36
11-10-'36.

*Read before the Richmond Academy of Medicine, January 25, 1944.

Here the patient walked in and refused to take further treatment. There was a gratifying and satisfactory improvement in relief of pain and improvement in her walking.

She was kept under reasonable observation until May, 1939. Blood Wassermann reactions continued negative. There were three spinal fluid Wassermann and colloidal gold reactions—the last of these in May, 1939, and they were all negative.

She was at that time employed and had been for about two years. She was active and had no unusual pains, her gait was normal, and mentally she was normal. Since that time she has been reported as continuing her activity without handicap. I believe that we are justified in classifying her as cured. Since there have been no more arthritic complaints, this may also have been helped to some extent—I do not know.

Several things which I wish to mention are that this was done over seven years ago when we were less certain that fever therapy with its dangers was an institutional procedure.

I was somewhat like the bumble bee: you know the engineers, taking into consideration the bumble bee's weight, his wing surface, etc., figure it all over very carefully and say it is physically impossible for the bumble bee to fly. But the poor ignorant bumble bee does not know all this, so he just keeps flying. I, not knowing all these dangers, etc., just went along and gave the treatments in my office.

The fevers were not carried as high as they usually are—due to my temerity from knowing some of the possibilities from high fevers. The fever was produced by simple short-wave diathermy plus plenty of insulation and, while it was done in my office, we were constantly in attendance.

The patient refused to submit to the number of treatments suggested.

Perhaps I am "sticking my neck out" to say that she was cured, but she has been symptom free for more than seven years.

Serologically, normalcy existed for about three years and has not been checked since. While the origin of her infection is not known, the father-in-law is a suggested probable source of innocent infection.

Finally, this case has not been reported as a rare, unusual one, but as one which any of us may and do see fairly frequently in routine practice.

1103 West Franklin Street.

Sea Bathing Aids Convalescence.

Now is the time when the seashore begins to beckon. In *The Journal of the American Medical Association* for April 15 Charles I. Singer, M.D., Long Beach, N. Y., and Kenneth Phillips, M.D., Miami, Fla., cooperate to explain the health values of sea bathing. Their report is part of a study of health resorts made by the Committee on American Health Resorts of the American Medical Association. Sea water is a compound salt solution containing a great variety of metallic substances but absorption of these mineral substances into the body does not occur even with prolonged bathing. Therefore the chief values of sea bathing are attributed to the temperature of the water, the difference befween the temperature of the skin and that of the water, the slightly irritant effect of the salt content on the skin, the mechanical stimulation by the waves of the surf, the effects on the body of exposure to air and sun after bathing and, finally, the effects of the sea breeze. Minor amounts of iodine in the air and the drinking water near the seashore also may have beneficial effects.

Among conditions which seem to be beneficially influenced by a stay at the seashore in summer are those in which the human being has been exhausted by the strain of modern life so that he is nervously exhausted. A seashore rest is also beneficial for convalescence after any disease that had helped to break down resistance.

People with tuberculosis or excessive action of the thyroid gland or heart conditions may be injured by attempts to utilize the value of the seashore in a northern climate. Particularly important, however, in the values of the seashore for health is emphasis on the duration of the stay; to get good effects anywhere from six to eight weeks may be required.

THE TREATMENT OF CERTAIN MENTAL DISORDERS BY PSYCHO-SURGERY*

R. FINLEY GAYLE, JR., M.D.,
Professor of Neuropsychiatry, Medical College of Virginia,
and
CLAUDE L. NEALE, M.D.,
Assistant Professor of Neuropsychiatry, Medical College of Virginia,
Richmond, Virginia.

"PSYCHO-SURGERY", a word accredited to Freeman and Watts, simply means surgery on an anatomically intact brain. They state that the procedure is similar to a sympathectomy or to the cutting of pain pathways in the central nervous system for the relief of pain, in that anatomically normal structures are sacrificed in the interest of the patient's health.[1]

The procedure, used in the treatment of twelve cases which we will review in this paper, is known as prefrontal lobotomy—it is the cutting of the pathways in both prefrontal lobes. It is said to interrupt the connection between the prefrontal lobes and the thalamus,[2] and is the latest method for the surgical relief of mental pain. In most instances it reduces the emotional reaction of the patient with reference to himself and, although these mentally disturbed patients often continue to have their delusions or hallucinations after the operation, they are less concerned with them and are able to pay little or no attention to their abnormal mental content.[3] In some instances following operation, patients begin to show interest in performance of productive work, where no such interest existed before lobotomy.[4]

The operation is a sequel to the work done by Burckhardt[5] in 1891 and to that of Puusepp[6] just before the last war. The present procedure was originated by Egas Moniz[7] in 1935 and has been popularized by the daring work of Freeman and Watts, who did the first operation of this type in this country in 1935. Their work has become an accepted practice and is now being used more extensively. (It was also in 1935 that Dr. William J. Mayo anticipated attacking the problem of mental disease by surgical measures applied to the brain.[8] In 1942 Freeman and Watts published the largest series of cases of prefrontal lobotomy found on record—136 in number—with the best results obtained in the agitated depressive cases.[9] The work of others has confirmed these results.[10]

*From the Department of Neuropsychiatry, Medical College of Virginia, Richmond.

For a long time the frontal lobes have been considered as the portion of the brain most concerned with personality. It is generally believed that it is by means of the frontal lobes that we are aware of sensations and are able to anticipate what may happen if certain sensations continue.[11] In other words, the frontal lobes, through their connections with the thalamus, appear to have direct control over affect and any alteration of the tracts involved produces an alteration in personality and in emotional response.

In most cases where prefrontal lobectomy has been performed because of traumatic, neoplastic, or infectious lesions the mental state has been improved. In prefrontal lobotomy no tissue is removed and a change in the personality function is the primary aim.[12]

In this paper we will give a preliminary report of our twelve cases with the results obtained when prefrontal lobotomy was performed. The cases were carefully selected. Eight of them were cases of agitated depression which is generally considered to be the most favorable type of case for this procedure. The surgery was done by Doctors C. C. Coleman and John M. Meredith, of the Neurosurgical Staff of the Medical College of Virginia Hospital. Surgical technique will not be discussed in this paper. The operation can frequently be performed under local anesthesia, shock from the operation is minimal, and there has been no surgical mortality in our cases, but it must be remembered that our series is small.

In practically all of the cases of agitated depression, there was little or no restlessness immediately following the operation. The patients frequently were disoriented, were usually incontinent but they were quieter, more coherent, more accessible and in about ten days they were able to be up and out of bed. The most striking effect noted was the absence of concern and the shallowness of the emotional reactions. Many of these miserable, unhappy, restless individuals who paced the floor wringing their

hands, moaning, groaning, sometimes yelling and screaming, practically always inaccessible and uncommunicative, were transformed into quiet, placid. uncomplaining persons who showed little concern about their troubles. Incontinence following the operation is a common and annoying symptom, particularly to the family; the patient is quite unconcerned about this as he is about everything. The incontinence is considered by some as a good prognostic sign.

The striking fact about the result obtained in these cases is that all of them showed some degree of improvement and all save one have made a social recovery and have been able to remain in their homes. The last report from one of our most recent cases, who did exceedingly well immediately following the operation, is that he is beginning to be concerned by his delusions and hallucinations and, should this continue, institutionalization may become necessary. Some of our cases showed only a little improvement until several weeks after the operation and several of those whose improvement was slow have made greater improvement than others whose improvement was immediate. Another patient showed very little improvement, and three months after the operation died of a heart attack. No autopsy was obtained but the family physician thought the death was not due to a cerebral lesion.

All of the cases presented here were admitted to the Neuropsychiatric Service of the Medical College of Virginia Hospital. Ten of the patients were between the ages of sixty-one and seventy-seven; one was fifty, and another twenty. Three of these patients had had electro-shock previously with little benefit and three of them had evidence of marked arteriosclerotic changes. One of the first cases done in this series had a unilateral lobotomy and showed no improvement until the other frontal lobe was cut a year later, following which there was an immediate marked change in her behavior. Prognosis of the mental condition in each case seemed hopeless and all of them had been mentally ill for a considerable period.

Psychological and electro-encephalographic studies could not be done pre-operatively in most of the cases because of the patient's uncooperative and disturbed condition. Such studies are being done post-operatively, but reports to date show no significant findings.

A brief summary of each case follows:

Case 1.—A sixty-one year old female with a history of seclusiveness, worry and concern over trivial matters and frequent crying spells for six months, prior to the operation was apprehensive, anxious and suspicious, paced the floor continually, wringing her hands, weeping constantly and begging that she not be killed. She had previously had thirteen electro-shock treatments. Following each treatment there had been relief from the agitation and depression for a few hours and then the symptoms had returned. Fifteen days post-operatively she was alert, smiling and stated that she was able to relax for the first time in many years. There was no disorientation and no incontinence of urine following the operation. She was discharged on the nineteenth post-operative day and according to reports, she continues to make an excellent adjustment at home.

Diagnosis: Involutional melancholia.

Case 2.—A sixty-three year old female with a history of onset of depression two years prior to admission to hospital, with weight loss, insomnia and ideas of hopelessness, was markedly agitated, depressed, paced the floor constantly and expressed many somatic delusions. Physical examination showed a blood pressure of 240/110 and some ankle edema. Electro-shock treatments were ineffective. Because of her physical condition lobotomy was done in two stages. At the first operation, a left-sided prefrontal lobotomy was performed. There was little change in patient's condition following this operation. There was no disorientation, no incontinence, and only slight improvement in agitation and depression. Two weeks later a right-sided lobotomy was done. Immediately following this there was disappearance of the somatic delusions, agitation and depression. She became cheerful, cooperative, joking and facetious. This condition persisted at the time of her discharge, two weeks after operation. Reports from her relatives since discharge are that she is adjusting well at home.

Diagnosis: Involutional melancholia.

Case 3.—Approximately two years after menopause this fifty-one year old female became depressed and agitated. The melancholia lasted for eleven months and was followed by two months of marked agitation and pressure of speech, without much depression. She then again became depressed and expressed somatic delusions. A left prefrontal lobotomy was done with little improvement in symptoms. A year later she was admitted to the hos-

pital depressed, agitated and delusional. At this time a prefrontal lobotomy was done on the right and immediately following the operation she became cheerful and quiet. On the tenth post-operative day, she developed a transitory fecal incontinence. She showed no post-operative disorientation but was dull and restless and emotional blunting persisted. She was discharged on the eighteenth post-operative day and there has been no recurrence of symptoms of depression and agitation.

Diagnosis: Involutional melancholia.

Case 4.—This patient was a seventy-six year old female with a history of severe agitation and depression of six months' duration. On admission she was markedly agitated, tense, confused, moaning, and groaning and repeating ideas of self-depreciation and hopelessness. She repeatedly expressed a desire to die but there was no history of overt suicide attempts. There was no evidence of marked mental deterioration.

Physical examination showed an obese, senile female with moderate cardiac hypertrophy. Following prefrontal lobotomy her convalescence was uneventful; there was slight urinary incontinence for a few days. During the first post-operative week she was quiet, unconcerned but thoroughly cooperative and accessible. Now. several months post-operatively, her relatives report she is making an excellent adjustment without any symptoms of depression.

Diagnosis: Agitated depression.

Case 5.—This sixty-two year old female had a history of depression, suspiciousness and paranoid ideas of three years' duration. On admission to the hospital she was depressed and agitated. She expressed ideas of self-condemnation and had violent temper tantrums with much yelling and shouting. Physical examination was essentially negative. Due to a large lateral ventricle, extending far anteriorly, the lobotomy was not very extensive. Following the operation her suspiciousness and paranoid ideas diminished but for about ten days she remained rather irritable and retained some of her paranoid ideas. Following this, irritability disappeared and she ceased to show any emotional disturbance as a result of her mental trend. She was discharged thirty-two days after operation and has been making an excellent adjustment at home for over a year.

Diagnosis: Agitated depression.

Case 6.—This seventy-three year old female entered the hospital with a history of agitated depression of ten weeks' duration. She was apprehensive and suspicious. She showed echolalia, thought blocking and definite mental deterioration. At times she was disoriented, disturbed and inaccessible. There was generalized arteriosclerosis with moderate arterial hypertension and some retinal sclerosis. She had a cystitis, believed secondary to a third degree prolapse of the uterus. Following the operation, the agitation disappeared but she remained somewhat suspicious and there was no evidence of any increase in amount of mental deterioration. She was discharged thirty-three days after operation and is reported to have had no recurrence of her former abnormal behavior.

Diagnosis: Senile psychosis, depressed and agitated type.

Case 7.—This seventy-one year old female had a history of depression, seclusiveness and suspiciousness for four years. She was also reported to have stolen and hidden small objects about the home. In recent weeks she had expressed many paranoid ideas and had had various auditory hallucinations. Occasionally she would run wildly about the house. For a year she had shown marked loss of memory and recently she had been completely disoriented as to time, place and person, and was untidy in personal habits. On admission her speech was incoherent, she was disturbed, delusional, hallucinated, combative and untidy. Physical examination was negative except for generalized arteriosclerosis and moderate arterial hypertension. Following the operation she was incontinent on several occasions, was disoriented and confusion continued. She was easier to handle and was no longer disturbed and untidy, was less agitated and less depressed. She was discharged the nineteenth post-operative day. Since that time the patient has been making an excellent home adjustment, is no longer seclusive, and does not express her former paranoid ideas.

Diagnosis: Agitated depression.

Case 8.—In this case of a sixty-nine year old female there was a history of agitated depression with anorexia, insomnia and negativism for fifteen months prior to operation. On admission she was negatavistic, noisy and appeared to be reacting to auditory hallucinations. Physical examination was

negative except for emaciation and dehydration. She had had six electro-shock treatments with some improvement resulting. However, when electro-shock was discontinued the symptoms reappeared. Immediately following the operation she was cheerful, alert and much less agitated. Improvement became marked on the second post-operative day. Incontinence was present for five days, then disappeared. She was discharged seventeen days after operation. At time of discharge she was cheerful, alert, well oriented and showed no evidence of recurrence of symptoms. She is now making an excellent adjustment at home, is bright, cheerful and unconcerned.

Diagnosis: Agitated depression.

Case 9.—This sixty-two year old female gave a history of hypochondriasis for many years and recent mental depression, agitation and somatic delusions. She had been a bed patient most of the time for four years and had been hospitalized several times because of "nervousness". She was in this hospital two months prior to operation and during this time there was no change in her behavior or mental content. A bilateral prefrontal lobotomy was done on September 26, 1941. The extent of the operation was limited because of enlarged lateral ventricles. Immediate improvement was very slight. Recent reports, now over two years since the operation, indicate that her symptoms gradually disappeared and that she is making an excellent adjustment and has no complaints.

Diagnosis: Agitated depression.

Case 10.—In this case of a sixty-eight year old female there was a history of depression of two years' duration and two previous hospital admissions. She had received metrazol and insulin therapy, neither of which resulted in any improvement. On admission to this hospital she was agitated, depressed and constantly expressed ideas of self-condemnation and self-depreciation. She begged to be killed. She had been eating very little and had had many tube feedings. Physical examination showed marked emaciation, a rectal fistula and severe contractions of the hamstring tendons. On the thirty-first day after admission a prefrontal lobotomy was performed. The post-operative period was not remarkable; she was incontinent on three occasions. and there was no change in her mental content. She developed a mild bronchitis and remained in the hospital forty-days after operation. After her discharge there was no change in her mental content and she died several months later. Her attending physician reported that her death was not due to a cerebral lesion.

Diagnosis: Agitated depression.

Case 11.—In this case of a seventy-seven year old male there was a history of depression and paranoid delusions of four months' duration. On admission he was disoriented, confused, noisy, uncooperative, combative, assaultive and delusional. During his stay in this hospital before the operation the above symptoms continued. He had occasional short periods when he was more cooperative, but he was consistently delusional. Forced feeding and parenteral fluids were often necessary. Electro-shock therapy was considered contraindicated because of coronary sclerosis and left bundle branch block. He was not considered a good operative risk but in view of the minimal amount of shock usually occurring, operation was advised. Following the operation immediate improvement was noted. He became fully cooperative, ate and slept well and showed none of his previous disturbed behavior. His delusions persisted but he appeared to ignore them. He showed urinary incontinence the first two days after operation. According to his daughter, he appeared to have regained his prepsychotic level. His improvement was so rapid that he was discharged from the hospital after ten post-operative days. Now, more than a month since his discharge from the hospital, it has been reported that he is showing some anxiety and apprehension about his delusions.

Diagnosis: Agitated depression.

Case 12.—A twenty year old male, the only case of schizophrenia in the series, gave a history of definite schizophrenic behavior and content for the past five years. On admission he was confused, delusional and showed marked disharmony of affect. Physical examination was negative. During his course in the hospital he showed periods when he was acutely disturbed, excited and uncooperative. At other times, when he was not disturbed, he was preoccupied, asocial and seclusive. A series of seven electro-shock treatments resulted in no definite improvement. On the day following the bilateral prefrontal lobotomy he appeared cheerful, was entirely cooperative and no longer expressed his former delusions. He showed transitory incontinence and

some disorientation. These disappeared and he became interested in ward activities. He became entirely cooperative. was free from confusion and excitement and all abnormal mental content disappeared. Fourteen days following the operation he was discharged and now, several months post-operatively, is reported to be making a satisfactory home adjustment.

Diagnosis: Dementia praecox.

SUMMARY

A preliminary report of the results obtained following prefrontal lobotomy in twelve cases of apparent chronic intractable mental illness is given. Of the twelve, one was very little if at all improved; all others showed definite improvement. Eight of the cases were diagnosed agitated depression, three involutional melancholia, and one dementia praecox. The duration of illness prior to the operations ranged from six months to four years and the age of the patients ranged from twenty to seventy-seven years. The length of post-operative hospitalization varied from two weeks to sixty days with an average of thirty days. The two patients who were kept in the hospital for sixty days after operation had other conditions not associated with the mental illness or the operation, which necessitated their hospitalization. The amount of disorientation following the operation varied considerably in this series but lasted only a few days in all cases in which it occurred. The most constant finding was that of the loss of self-concern, anxiety and apprehension. This relief of distress was accompanied by a change in behavior with the result that the patients became capable of living and adjusting in their home environment, which was in sharp contrast to their preoperative behavior, which had made extramural adjustment impossible.

An interesting observation in two patients in this series is that one was unimproved following a unilateral lobotomy but showed a remission of sypmtoms following a lobotomy on the other side one year later. Another showed no improvement following unilateral lobotomy, with cessation of symptoms when lobotomy on the other side was performed two weeks later. These two cases suggest that a bilateral lobotomy is necessary if improvement is to be expected.

CONCLUSIONS

1. Many hopeless, chronically mentally ill individuals who appear to be destined for an institutional existence the rest of their lives, as a result of this procedure make a social recovery and most of them are able to live in peace and quietude in their own homes. Many of them who still have abnormal content of thought are not disturbed by it.

2. Moderately severe generalized and retinal arteriosclerosis do not appear to be contraindications to lobotomy.

3. Disorientation or incontinence when present following the operation are not permanent.

4. Improvement following prefrontal lobotomy in most cases is immediate but may occasionally be delayed, and in either instance is usually permanent.

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THE MATERNAL MORTALITY SITUATION*

C. J. ANDREWS, M.D., F.A.C.S.,
Norfolk, Virginia.

It is gratifying to note that the maternal mortality rate is decreasing throughout the whole country and now is somewhat less than half that of 1930. The records of Virginia for 1930 showed 7.2 deaths per 1,000 live births. The 1942 rate was 3.3. The percentage for the United States has been slightly better except 1933 when it was the same, 6.2. The reason for Virginia's deficiency may be accounted for by the fact that some states have a smaller percentage of negroes and other types which give a higher mortality rate. Perhaps there may be other causes which should be sought for and corrected if possible. Fortunately, organized medicine, including the machinery of public health, no longer assumes the role of self-congratulation. The progress so far made was not accomplished that way. The plan of searching for the cause of failures and making diligent effort to correct them is generally regarded as the proper attitude. This idea is not confined to obstetrical management, but is followed by all branches of medicine. Every reputable hospital makes a critical study of its records at regular intervals.

Following this plan the Medical Society of Virginia appointed a Maternal Health Committee of seven members who undertook to study the records of every maternal death which occurred in the State of Virginia. The Committee has worked in close harmony with the Obstetric Division of the State Health Department, which has collected the data and given the closest cooperation. Maternal Health Centers and Prenatal Clinics have been established throughout the State. These are under the direct management of the State Health Department and are doing untold good by furnishing prenatal and obstetrical care. It also provides centers of information and education, which may eventually do much to break down the obstacles of ignorance which has contributed so much to disaster. So far, the Committee has reviewed 475 cases. Approximately one-half or two hundred and twenty-nine (229) of these were classified as preventable. Two-thirds, or three hundred and eleven (311) cases had no prenatal care. This is not of great interest to us now as its role in maternity mortality is well known. However, it does remind us that remedies for this deficiency must be continually sought if suitable progress is to continue. The 229 preventable deaths are a constant challenge to better obstetrical practice. Many of these lost their lives on account of ignorance and neglect on the part of the patient or the family. The treatment recorded in 165 cases, one-third of the cases studied, was considered by the Committee to be incorrect as related to the procedures and methods generally accepted and found to give more satisfactory results. I repeat, approximately one-half of the 475 deaths were preventable, and one-third had incorrect treatment. All of these would not necessarily have lived if they had been given the most approved treatment, but many would, and it is the treatment of these which should be brought into the limelight in order that mistakes may be recognized and the same mistakes not be repeated indefinitely. Some of these, perhaps many, were due to errors in judgment, or, in other words, the hindsight was better than the foresight. These can never be entirely eliminated, but if the particular error is recognized it is not likely to be repeated. One group, and this forms the larger number, seems to be due to the neglect of methods which have been widely adopted and generally found to give better results.

TOXEMIA

Toxemia with one hundred and twelve (112) deaths heads the list. Forty-three (43) of these are considered to have received incorrect treatment. It would be interesting to have tabulated the various procedures which were regarded as incorrect. Possibly sometime someone may undertake this, but at present I can only rely on general impressions obtained from the study of these records. The greater number either had no prenatal care or deficient care. The patient and family have often contributed to this. Available methods for controlling convulsions were not used. Attempts to induce labor were instituted before controlling the eclampsia. The use of general anesthesia for delivery in toxic patients is common.

*Read before the Seaboard Medical Association of Virginia and North Carolina, at Richmond, November 30-December 2, 1943.

Eclampsia Case Report.—This colored 26 year old patient was given prenatal care beginning January 24, 1942. There was nothing abnormal shown on weekly visits during this time until May 24, 1942, when she complained of severe headaches which were relieved by some self-medication. During two days following that time she felt well. About 9 A. M. on the third day she was found in bed by a member of her family and she was having a convulsion. She was given morphine gr. ⅛, two doses, and some ether to control the convulsion. She was sent to the hospital two hours later. She was admitted about 11 A. M., having a convulsion. In the hospital she was given 20 cc. 10% solution of $MgSo_4$ in the vein and sodium amytal by rectum, amount not stated. One hour later the patient was quiet and apparently doing well. At this time a Voorhees' bag was inserted. One hour later the pulse was barely perceptible and there were several convulsive twitches. Death followed a short period of respiratory distress four hours after admission. She was not delivered.

This case illustrates the disadvantage of making any attempt to induce labor until the patient has sufficiently recovered from her eclampsia. Apparently, the convulsions were being controlled and if suitable treatment, possibly extending over a period of days, had been carried out it is not unlikely that she would have had a successful recovery. Inhalation of ether possibly contributed to this result.

SEPSIS

Sepsis accounts for 81 cases; 29 of these were classified as having received incorrect treatment. Sepsis is often the fatal factor in other complications, as toxemia hemorrhage and untimely attempts to induce labor.

Case X represents a very common sequence: Patient, white, aged 38, gravida 1, obese, arthritic, and hypertensive, 8½ months pregnant. Induction of labor was attempted by castor oil and pituitrin; membranes ruptured artificially after 24 hours of inactive labor. No observation recorded as to condition of cervix or evidence as to possible disproportion. A classical section under general anesthesia was done on the second day because of failure to progress. Sepsis and death followed promptly. It is suggested that treatment of the toxemia first would have been better. A study of the pelvis and head as to position or possible disproportion would have then been in order. Condition of the cervix would also have given valuable information. If delivery was thought to be indicated and the condition appeared unsuitable for vaginal delivery, an elective section under local or caudal anesthesia, without interference from the vaginal tract, would have offered better prospects. If it had been necessary to do a section late, either a low cervical or extraperitoneal section under local anesthesia would have offered a considerable degree of safety.

Puerperal Sepsis Following Midwife Delivery.—This case represents the midwife problem. It was a colored primipara, age 17. No prenatal care. The midwife said it was a spontaneous delivery after a four hour labor. Patient did well until about one week postpartum, when she complained of pain in the side and then in the stomach. Chills and fever began after this time. The abdomen became distended after the onset of chills and fever. The physician who was called stated that this patient was seen the first time about two weeks postpartum. She had been having chills at the time of the visit. She had a high temperature, and the abdomen was distended. The patient was sent to a hospital. She had an unbilical hernia that ruptured sometime later and pus was discharged from it. She finally developed pneumonia and died 14 days after admission. These records show a considerable number of women who have been delivered and treated by midwives and have died from sepsis although the labor was supposed to be very normal.

Many of these sepsis cases followed normal deliveries conducted by midwives.

PLACENTA PREVIA

Placenta previa was the diagnosis in 27 cases; 22 were incorrectly treated. The common error here was, first of all, not taking the first painless hemorrhage seriously. When the repeated bleeding did demand attention a pelvic examination was made without preparation for delivery and without first arranging for blood transfusion. Every patient bleeding in the latter months of pregnancy should be hospitalized after the first bleeding and without pelvic examination, either before or after admission, unless preparation has been made for immediate blood transfusion and suitable treatment. X-ray examination has been found to be very helpful in locating the placenta, but is not essential.

Placenta Previa and Possibly Ruptured Uterus.—This was a white patient, age 35, 2 other children,

and about 8½ months pregnant. This patient had an attack of bleeding, the first time in December, 1941, about the fifth month of pregnancy. She was hospitalized at this time and the bleeding stopped. She remained in bed at home for a period of 2½ months, before the time of delivery. She was admitted to a hospital April 17, 1942, on account of vaginal bleeding. She was not in labor. The diagnosis of marginal placenta previa was made on a vaginal examination. The cervix was about ½ dilated. A Braxton Hicks version was done after 18 hours stay in the hospital. The bleeding continued after the delivery was completed with forceps on the after-coming head. The vagina was packed. The patient was transfused before delivery and plasma after delivery. The bleeding could not be controlled. Ergotrate, pituitrin, and glucose were given. The patient died about two hours postpartum.

Version and extraction through a partly dilated cervix is always dangerous, and is an invitation to death. If the patient was not bleeding at the time, it is difficult to know why this method was adopted. A simple rupture of the membranes, certainly in a multipara, would probably have been all that was needed. Of course, an early Cesarean section would have offered also a safer method of handling it.

PREMATURE SEPARATION OF PLACENTA

Premature separation of placenta was the diagnosis given in 14 cases, and 6 of these cases, or about 43%, received incorrect treatment. Premature separation is not so common as other types of hemorrhage, but the mortality is relatively high. Toxemia is often a part of this. There is considerable difference of opinion as to the best methods of treating premature separation. Some use and recommend so-called conservative methods, as rupture of membranes, tight binder, etc. All will agree on this in some cases. There are others who are likely to advocate section more frequently, while some others think section is never indicated. All will agree that blood transfusion should be provided if possible before any treatment is undertaken. It is my impression that this has been the principal complaint of the treatment. The diagnosis has not been made so promptly since external bleeding is not always present.

POSTPARTUM HEMORRHAGE

Postpartum hemorrhage was the diagnosis given in 51 cases, and 22 of these cases received incorrect treatment. Fatalities followed many normal labors in homes. In a number the doctor left the home too early. The use of anesthesia in the third stage of labor and while repairing the perineum is a contributing factor in some cases.

All of these deaths cannot be charged to the individual doctor. The cause goes back to the teaching of obstetrics during the last three-quarters of a century. Every textbook published until recently advises the student to treat the third stage in a manner which is in my opinion exactly wrong. They direct the student to push down the fundus to expel the placenta and control hemorrhage. Nothing is more conducive to hemorrhage. In most schools this is still taught although there are signs of improvement. One recent article by the chairman of a State Maternal Welfare Committee complains that hemorrhage now leads all causes of death in his state, and that 60% are due to postpartum hemorrhage. As a remedy for this he advises the obstetrician to "push down" on the fundus until all clots are expelled; then while holding down on the fundus with one hand, hold the other hand tightly against the vulva pad.

Dr. R. L. Dickinson, in 1899, 44 years ago, published a well illustrated paper in which he demonstrated the fallacy of this, and it is still true today. His plan was to make pressure on the lower uterine segment, elevating the fundus in the abdomen. Its value can be demonstrated by anyone who wishes to try it.

Dickinson used this procedure to control hemorrhage, although, I do not know that he used the plan to express the placenta. His paper did not mention this.

The writer described a method of treating the third stage of labor in a paper read before the South Atlantic Association of Obstetricians and Gynecologists in February, 1940. This method was illustrated by excellent drawings made by my associate, Dr. R. B. Nicholls. I had been using this plan for years. During the preparation of that paper I read the article by Brandt, which was so similar that I called it the Brandt method to avoid confusion. The method briefly is this:

The palmar surfaces of the fingers of the left hand are placed on the uterus at the junction of the lower third and the upper two-thirds of the uterus. The cord with a hemostat attached is held by the

right hand. Gentle upward pressure is made on the uterus. If the placenta is separated, as it usually is in three to five minutes, the placenta can be felt to slip under the fingers; then, turning the hand with the palmar surface down, pressure is made on the placenta, not on fundus, and guiding it by the cord it is expelled. If there is any disposition to bleed the hand is placed again on the cervico-uterine junction, as previously described, making gentle pressure and raising the fundus in the abdomen after the method of Dickinson. At this time ergotrate is usually given in the vein or pituitrin in the muscle. If there is disposition to bleed, an assistant may place his hand at the point described and hold it while the perineum is being repaired. If local anesthetic is used in the perineum no anesthesia is needed. This greatly facilitates contraction of the uterus.

After the publication of my paper, Dr. DeLee, in a personal communication, stated that he thought the principle described was correct and that he proposed to adopt it. The eighth edition of Principles and Practice of Obstetrics, DeLee-Greenhill, partly re-written by Greenhill and recently published, adopts this principle on the whole, and denounces the Crede method of expression, but, unfortunately, uses one illustration which describes the piston pressure method of expression of the placenta, which I believe to be conducive to hemorrhage. Since hemorrhage looms large as a cause of maternal deaths, further and more wide-spread study of the third stage of labor seems suitable.

It is amazing that after the publication of Brandt's paper which offered so much help for a recognized need, so little attention was paid to it. I can find only one reference to it in medical literature, which appeared during the seven years intervening before my paper was published. The reference referred to is a casual mention of the Brandt maneuver in a paper by Pastore on hemorrhage. This only illustrates the slow progress we make.

ABORTION

Abortion contributed 64 deaths; 10 of these were incorrectly treated. Probably the majority of these abortions were criminally induced. It is evident that the common practice of curetting, particularly if fever is already present, has given bad results.

RUPTURED UTERUS

Ruptured uterus was the diagnosis in 15 cases; 9 cases received incorrect treatment. Some of these followed previous classical section and some were associated with a number of unfortunate moves. Version with partly dilated cervix is responsible for several of these deaths. Pituitrin, ½ cc. doses, in the first stage of labor was recorded in a number of these cases. Case XII records this error.

Case XII—Ruptured Uterus.—This patient was a colored gravida 5, age 36. It was stated that she had been attended during her prenatal period and showed nothing abnormal. At the time of a previous pregnancy she had bled profusely when an abortion occurred at three months. The presentation at the present pregnancy had been transverse and was converted to a vertex three weeks before the time for delivery. The patient was in labor and a physician was called. Pains were mediocre. She was given two doses of pituitrin ½ cc. each. The pituitrin was given about midnight, and soon after that time pains were not severe and progress stopped. She was advised to go to the hospital when she began showing signs of shock. She died soon after admission. A postmortem section showed an organized clot in the fundus. The placenta was separated from the uterus. The uterus was ruptured on the left side above the cervix. The infant was free in the abdominal cavity. Although the patient was advised to go to the hospital when she showed signs of shock, it is noted that patient was unwilling to do this and wished to wait until morning which she did, and was in a moribund condition when she arrived there. Pituitrin is still furnishing a fair number of deaths and this case is selected as one which is rather characteristic, as there was certainly nothing in her history to suggest inducing labor for any reason.

Manual dilatation of the cervix is recorded in one case.

ECTOPIC PREGNANCY

Ectopic pregnancy was the diagnosis in six cases; four received incorrect treatment. My impression is that these errors were largely failure to make a diagnosis (certainly a pardonable error) and failure to act promptly and particularly to provide transfusion.

There are several other conditions which furnished an occasional death.

There were six cases which died of prolonged labor and exhaustion. These have been mostly associated with failure of prenatal care, particularly study of the prenatal position and disproportion. It

also calls attention to the fact that a patient cannot remain indefinitely in labor without serious damage. The X-ray cannot always decide the question, but a trained radiologist can give information which is life saving; particularly is this true in the narrow pelvis which can be suspected but not accurately diagnosed without X-ray pelvimetry. All breech cases in primiparae should have X-ray measurement of pelvis and head of foetus. All cases which show no disposition to engage and to over-ride in the week or two before delivery should have X-ray pelvimetry. Almost everyone is within reach of this. Under the present plan I have no doubt that the State will provide this service for anyone if it is not otherwise available. However, the ordinary methods of pelvimetry and observation available to all will furnish information which, if carefully interpreted, will provide a greater degree of safety than these patients have experienced.

During 1942, 65,004 births occurred in Virginia. Two hundred and twelve (212) of these women died. According to our present information only about 107 of these were preventable and about 70 were subject to treatment which would be considered incorrect.

I have attempted to point out some of the means by which we may eliminate this group of 70 deaths in one year. To do this we will have to continue to criticize ourselves and make use of methods generally found to give better results. It is encouraging to note that 64,790 have been safely delivered during the last year. This must have included a vast amount of good obstetrics. In 1930 the rate was 7.2, which would have resulted in 468 deaths in 1942 if no improvement had taken place, or 254 lives were saved during 1942 in Virginia alone by the improvement in obstetric practice. What the future has in store must depend to some degree upon the fate of the medical profession itself. If the plans of the Wagner-Murray-Dingell Bill are enforced and the medical profession subjugated, progress may recede as it has in totalitarian countries.

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605 Medical Arts Building.

Medical Education.

Dr. William Henry Welch, in an address at the graduating exercises of Johns Hopkins University Medical School, June 13, 1933, made the following statement:

"But medical education is not completed at the medical school; it is only begun. Hence it is not only or chiefly the quantity of knowledge which the student takes with him from the school which will help him in his future work; it is also the quality of mind, the methods of work, the disciplined habit of correct reasoning, the way of looking at medical problems.

"In order to cultivate in the student this habit of thought, this method of work, I believe that there is no one thing so essential as that the teacher should be also an investigator and should be capable of imparting something of the spirit of investigation to the student. The medical school should be a place where medicine is not only taught but also studied. It should do its part to advance medical science and art by encouraging original work, and by selecting as its teachers those who have the training and capacity for such work. In no other department of natural science are to be found problems awaiting solution more attractive, more significant than those in medicine; and certainly these problems do not lose in dignity because they relate to the physical well-being of mankind." (Chesney, Alan M., The Johns Hopkins Hospital and the Johns Hopkins University School of Medicine. Baltimore, Md. Johns Hopkins University Press. 1943. 1: 235-236.)

NUTRITIONAL ACTIVITIES OF THE VIRGINIA STATE DEPARTMENT OF HEALTH*

HARRY H. HENDERSON, M.D.,
Epidemiologist, Virginia State Department of Health;
A. L. CARSON, JR., M.D.,
Director, Bureau of Maternal and Child Health;
and
J. B. PORTERFIELD, M.D.,
Director, Bureau of Industrial Hygiene,
Richmond, Virginia.

For many years, those engaged in public health activities have been aware of the effects of poor nutrition. While much has been known about the more definite deficiency-diseases, there has been, until recent years, insufficient authoritative information relative to the occurrence of the less dramatic subclinical types.

Now dietary deficiencies present a challenging public health problem. A realization of the important part nutrition plays in the prevention of disease and in the advancement of health has resulted in an acceptance by public health officials of the need of special nutritional efforts in the general health program. War efforts have served to emphasize the wisdom of this attitude.

In accepting the challenge, the Virginia State Department of Health realized that the problem of educating the public to purchase and eat what was good for it involved tremendous barriers. Not only personal habits and economics, but false or at least half-false conceptions of food values, as well as fads, all play a part in this difficult situation. Through radio, through advertisements, and by means of printed presentations, a fair proportion of the public has developed warped ideas on the subject of food, which will demand much persuasive effort to uproot.

For example, the State Health Department is aware of the present buying wave of concentrated vitamins. Undoubtedly, the importance to health of vitamins in this form has been fantastically exaggerated by some of the manufacturers of these products. Hundreds of thousands of men and women, influenced by high-powered advertising, are self-prescribing these magical bullets of energy to the tune of approximately $100,000,000 annually. These well intentioned, though misguided individuals, ignore the significant fact that, if enjoying reasonably good health, the grocery store and not the drug counter is the place to find vitamins and, moreover, if ill, that the physician only is the one to judge whether or not vitamin concentrates are indicated.

To neutralize this and other misleading information on food, calls for effective counterattacks. State and local health departments, through the usual publicity channels, are attempting to do what they can in this direction, aided by the practicing physician, large insurance companies, and the baking, canning, meat and dairy products industries.

The Virginia State Department of Health, in its realization of the public health significance of nutrition and malnutrition, has assumed a cooperative approach to the problem. It realizes that any nutrition effort for the entire population requires the broadest possible sanction. All major related organizations share in supplying this approval. Consequently, in developing a division of nutrition, the Department recognized that the activities of such an administrative set-up must be related carefully and completely to existing community groups. The Department, also, appreciates the publicity activities of the American food producers whose hundreds of thousands of dollars are buying entire pages of national magazines and on them are placing basic nutritional facts. Undoubtedly, this influence tends to mold the public's nutritional judgment and to impel it, to some degree at least, to revalue its previous notions on this vital subject.

The nutritional activities for which the Virginia State Department of Health has assumed responsibility are essentially educational. This work was inaugurated two years ago, with the employment of a nutrition consultant. Two nutritionists have been added since that time.

At the beginning, a three day nutrition institute was conducted for the Department's advisory and field staff, at which time, a review of dietary essentials was given, followed by discussion of the prob-

*Read at the meeting of the Richmond Academy of Medicine, February 22, 1944.

lems involved in the proposed program.

Similar institutes were held for each district in the State. These were attended by the personnel from surrounding health departments. The conferences aimed to develop local nutrition activities as an integral part of the general public health work, as well as to focus attention on current nutritional information.

Although there is much planning before the nutrition service actually reaches a county, the burden of the program rests with local health department members. The Department's experience indicates that efficiency is promoted and time saved by having the routine nutritional efforts handled by public health nurses, reserving the nutritionist's time for advisory and specialized service. Of course, it is upon the county health officer that the actual execution of the program depends. Moreover, it is through the health officer that the nutritionist gains entree into the various county organizations and activities.

Each locality has its own individual problems. For example, a program, which fits a county with a scattered population in a mountainous area, obviously will differ from that of another centered around a large industrial city.

In some counties, the health officer may feel that the school lunch program is the best approach to the county's nutrition needs. In another, prenatal clinics may seem to be the best medium. But, as previously intimated, in all jurisdictions the nurses represent the most important public health channel through which information on nutrition can be disseminated. By them, group instruction in nutrition is being carried on in the prenatal and well baby clinics held in rural areas. This type of instruction has proved valuable not only to patients, but, also, to midwives and lay persons attending the clinics. Thus a desirable effect throughout the community has been achieved. Demonstration material and outlines for instruction are prepared by the State Department of Health.

The cooperation of Home Demonstration and County Agricultural Agents has been most helpful in developing local nutrition programs. When requested, help has been given in the formation of committees of these organizations. Also, upon request, refresher courses of home economics teachers, emphasizing the public health approach, have been conducted.

Concentration of large groups of workers in wartime industries has offered opportunities to improve nutrition. To meet this need, the State Health Department has developed an industrial nutrition program.

With the active cooperation of management and particularly of plant medical departments, many establishments have given our Department an opportunity to promote nutritional education for the employees; through this channel it has been possible to reach many of their families. Exhibits and posters emphasizing the importance of the right food are used often in the cafeteria or other appropriate places. If the plant publishes a weekly newspaper, articles on nutrition are prepared and formulated by the Department. These items frequently are released under the plant physician's name or may be run as straight news.

A series of simple, attractive leaflets and posters, each designed to stress a single fact about good nutrition has been prepared for use in the industrial program. The series covers several months and includes a pertinent bulletin on the packed lunch—one for men and one for women.

At present, about 150,000 workers are being reached regularly by this service. This material is offered free to industry. Each worker receives a new leaflet every two weeks and a new poster goes up on the plant bulletin board once a month. All participating plants are visited by the industrial nutritionist and the importance of proper diets for the worker is discussed with the plant officials.

Eating facilities are checked as to adequacy and type of lunch chosen by the worker. This is done by keeping a record of each worker's cafeteria tray. The contents are checked and later graded as good, fair or poor, according to standards previously established. The result of this survey then is published in the plant newspaper. The educational advantage of this approch is natural and believed to be effective.

These efforts are reflected in many plants by a marked improvement in eating facilities. In numerous instances, management has developed a detailed educational program.

Public utilities, also, have been most cooperative. Through their inspiration and guidance comprehensive nutritional conferences in industrial communities for the wives of plant workers have been conducted.

At the request of local health departments and with the active assistance of State and local departments of education, intensive nutrition educational programs have been carried on in the schools of selected counties.

Surveys have been made of the adequacy of the diets of school children in these counties. This information is used to interest the students, teachers and parents in the importance of improving the nutritional status of the children as well as a basis for instruction in the individual classroom. Elementary supervisors have worked closely with the Department's nutritionists in promoting this work.

The nutrition education program in the schools includes the day by day environment and instruction; the school lunch, home-school cooperation, adult education and school-community team work. The content and methods of instruction vary with age and the demand for details of knowledge on the subject. Teaching materials and suggestions for posters and exhibits have been furnished, illustrative materials distributed, and moving pictures shown. Talks have been made to the children and adult groups, particularly parent-teacher associations.

A number of local school lunchroom committees have requested the Department's advisory services in connection with special problems arising in the operation of school lunchrooms. Since it is not what is on the menu of the school lunch, but what is "in the child" that counts, correlation of teaching with experience in the school lunchroom is recognized as an educational opportunity.

Incidentally, special emphasis is placed on the development of the child care program of the Office of Civilian Defense. The health supervision of the children of mothers now being employed in industry presents numerous opportunities to contribute to the war effort as well as to the health of future citizens. Advisory service in nutrition, to the recently organized local child-care centers, is considered by our Department to be one of the more important immediate necessary health protective measures. A nutritionist visits these centers and renders such advisory service as may be indicated. Materials needed for this activity and forms to record the procedures involved in supervising the health activities of the children have been prepared and made available to the personnel of nursery schools.

Plans are being made in a selected area to include nutritional services in the preschool clinics that are held each spring in the public schools. This will be in the nature of a demonstration to show what can be accomplished by adding this service to the preschool clinic. A nutritionist will confer with the parents of each child attending the clinics in the chosen locality. Specific nutritional deficiencies will be noted. Parents of these children will be given help through home visits and other individual work.

Again, the State Department of Health gives assistance, when requested, to the dietary departments of smaller hospitals, which lack the services of a trained dietitian. Hospital outlines have been prepared giving information on necessary routine procedures and other pertinent facts, which have been found most often to be requested. Along with other results of this activity, the personnel of these smaller hospitals have been encouraged to give more individual instruction in the normal diet.

Although, the cases of pellagra in the State of Virginia may not seem to be as high as in most of the other Southern States, it is believed there are many cases which are not recognized as such, perhaps due to the fact that many people suffering from sub-clinical deficiencies never go to a doctor. Consequently, the Department recognizes the part it should play in bringing this problem to the attention of the general public, as well as to the professional groups. When this disease is reported to the Department, it is subsequently followed up by one of its nutritionists.

In conclusion, the State Department of Health is under no delusion regarding the size of the problem and the difficulty involved in its nutritional efforts. The intelligent, energetic and efficient activities of federal, State and local agencies and of the food industry, to raise lay judgment in nutrition to a satisfactory performance level, is readily admitted to be a tremendous task. Ignorance, prejudice, habits, misinformation, half-truths and just plain human stubbornness combined, represent a virtual Goliath. However, in view of the progress that can be reported truthfully, as a result of the cooperative efforts of those legitimately in the nutrition field, the Department constantly keeps before it the fact that David *did* slay Goliath—and takes heart from the memorable feat.

NUTRITION FROM THE DOCTOR'S POINT OF VIEW*

WALTER WILKINS, SURGEON (R),
United States Public Health Service,
Washington, D. C.

1. *Nutrition, A Universal Problem.*—The problem of nutrition concerns more people than any other phase of our war effort. Our nation is now faced with a task for applied medical science which is as great as the development of sanitation or the control of communicable disease. Such a broad statement is justified because nutrition is a universal problem, affecting, as it does, all of the people all of the time. It involves not merely an attempt to avoid malnutrition. It is much bigger than that. We must be concerned with continued exploration of the possibilities for the application of present and future knowledge toward the attainment of optimum health. In the field of applied nutrition, we are not so much concerned with avoiding something as we are with gaining an objective. In 1941, Sir John Orr, in a review article on Nutrition and Human Welfare, said: "The new science of nutrition does more than show the way to better health and improved physique. It affords a solution to some of our most difficult social and economic problems. If its exponents speak with the authority warranted by the knowledge which they have acquired in recent years and use all their influence to get this knowledge applied, a review article on Nutrition and Human Welfare *ten years hence* may be a record of an unprecedented advance in human welfare."

In the everyday practice of medicine the degree of our responsibility for solving a problem is not necessarily in proportion to the magnitude of the problem; it is rather determined by the availability of methods for diagnosis and treatment. The nutrition problem is not only great in magnitude, but is one regarding which much knowledge is now available.

Excerpts from a recent bulletin of the National Research Council on "Inadequate Diets and Nutrition Deficiencies in the United States" are of particular interest to medical men.

"All the evidence is in agreement that deficiency states are common among the population of the United States. Most of them are not the severe acute type. Rather, they are less intense in degree and very much slower in their course. Predominantly the deficiency states here are mild, moderate or severe chronic forms. Because of their slow gradual development, their presence is commonly unsuspected. In frequency and severity, they increase with age and with lowered economic level. As yet optimum nutrition throughout the nation has not been achieved; on the contrary, deficiency states are present on a large scale.

"Statistics on the prevalence of iron deficiency (hypochromic) anemia in the population of the United States are not nearly as complete as the figures available for the British Isles. All surveys show a notably high prevalence, especially in children and pregnant women of the lower income groups. . . . .

"Now that reliable methods are available for the determination of ascorbic acid in the blood, reports of the prevalence of vitamin C undersaturation in population groups are appearing with increasing frequency."

If the signs of thiamin deficiency "in only half the subjects studied (in a recent survey) are eventually proven to be the result of a thiamin deficiency, the prevalence of neurologic changes on a thiamin deficiency basis is large enough in school children and in adult males under 40 years of age to cause genuine concern."

2. *Malnutrition—What Is It?*—What do we mean by malnutrition? When is a person malnourished? Is it only when he is actually starving, is it when he fails to reach an optimal nutritional state, or is it somewhere between these two extremes? Such a question is not entirely impractical since, as yet, we have no commonly accepted yardstick for measuring nutritional status. For this reason we hear widely divergent statements as to the prevalence of malnutrition among population groups.

If we use the starvation standard, we can say that we have little or no malnutrition in this country. If we are not satisfied with anything less than the best, and feel that anything below optimum

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nutrition is malnutrition, then we must admit that few of us could measure up to this standard. Undoubtedly, we will find that we have all levels of nutritional status represented in most population groups.

In the classical deficiency diseases, usually some one deficiency predominated to such an extent that the entire condition was attributed to that single deficiency; for example, pellagra, scurvy, rickets, etc. As our diagnostic methods improved, we began to obtain more satisfactory diagnoses. In some instances symptoms which were usually present with a recognized deficiency, and formerly had been attributed to that deficiency, were found to be due to concurrent shortages in other nutrients. For example, it was found that certain signs around the mouth which are often seen in pellagra patients are due, not to niacin deficiency, but rather to lack of riboflavin.

Malnutrition is not a single disease. Etiologically, it is more like a group of diseases superimposed one upon the other. Rarely, if ever, outside of research laboratories, do *single* deficiencies exist. Almost every case of malnutrition is a combination of deficiencies with one or more predominating. This is usually true even in the mildest forms of malnutrition where people are getting almost enough, but not quite enough, of several nutritional essentials. There are all degrees of deficiency which appear in an infinite number of combinations.

As one would expect, the manifestations of milder conditions are usually less pronounced and often less specific. Also, they are usually disturbances in function rather than gross organic or anatomical changes. Deficiency diseases, as a group, have been popularly referred to as *hidden hunger*. They are hidden in the sense that their manifestations often are not recognized as hunger signals.

3. *Where Does Malnutrition Begin?*—Unfortunately, we cannot say with finality that a certain percentage of the people in the United States are well-nourished and a certain percentage are malnourished. In any group studied, the malnutrition found by any one worker depends on his knowledge of it, the thoroughness with which he searches for it, and the yardstick by which he measures it. Requirements for specific nutrients vary from one group to another, from one individual to another, and even in a single individual under different conditions. Then, too, malnutrition is a generic term applied to a group of diseases, not to a specific disease entity with a single causative agent. Also we recognize borderline states of inadequate nutrition which hardly warrant the term *disease* in the ordinary sense. Such states have been referred to as subclinical malnutrition.

The range between severe deficiency disease and optimum nutrition is wide and any divisions into levels must necessarily be arbitrary. We can no more draw a line and say "at this level malnutrition ends and good nutrition begins" than we can say "at this moment a patient ceases to be sick and becomes well." For practical purposes we might think of nutritional status in terms of *zones*, which merge or blend into each other as do the colors of the rainbow. For example:

1. The *danger zone*, including nutritional states varying from full-blown deficiency disease through different levels of poor nutrition, gradually blends into the subsistence zone.

2. In the *subsistence zone*, we find nutrition ranging from fair to moderately good and blending into the optimal zone.

3. In the *optimal zone*, the range is from good to best.

Certainly, morbidity and mortality tables have not reflected the magnitude of the nutrition problem in our national health economy. In fact, it seems likely that "dietary inadequacy" is so common in the United States as to be considered "normal" or average. Jolliffe, McLester, and Sherman concluded in a recent summary: "The evidence at our disposal warrants the conclusion that dietary inadequacies and malnutrition of varying degrees are of frequent occurrence in the United States and that the nutritional status of an appreciable part of the population can be distinctly improved. If optimal nutrition is sought, not mere adequacy, then widespread improvement is possible." To quote these authors further, "Some types of malnutrition are:

"(1) Strikingly obvious to everyone,

"(2) Some are apparent only to the physician who looks for them, and

"(3) Some are evasive and elusive even to the careful observer using the most accurate specialized technics.

"If the first group alone is counted (those strikingly obvious to everyone), the prevalence of mal-

nutrition will be recorded as low, almost negligible. If the second group is counted (those apparent only to the physician), then the rate will be high. If the third group is counted (those evasive and elusive even to the careful observer), then the rate will be sufficiently high to cause genuine concern."

The fact that average longevity has increased should not give us a false sense of security. A large factor has been a great reduction in infant mortality. Also, while increased longevity may, in a very general way, be related to the health level of the population, we cannot accept it as a valid criterion for *measuring* health level. Paradoxically enough, with our birth rate decreasing (exclusive of the wartime stimulus) and our average age gradually becoming greater, our *"average health level"* may be actually decreasing. It is significant that the percentage rejections of selectees for military service increases markedly with the increasing age of those examined.

4. *Malnutrition Incognito.* — Malnutrition has been classified in various ways and to different degrees. Etiologically, malnutrition has been divided into two general types:

(1) *Primary* (malnutrition) or malnutrition resulting from inadequate intake of dietary essentials.

(2) *Conditioned* (malnutrition) or *secondary* malnutrition which is brought about by changes in the individual human economy or by factors other than dietary intake.

To these two we might add a third which etiologically may overlap one or both of the above but which, practically speaking, would aid in our appreciation of the problems of hidden hunger. This is *Malnutrition Incognito,* by which we mean malnutrition existing in an individual but overshadowed and obscured by some more obvious abnormality which claims our attention. In retrospect, the cycle of the old method of treating typhoid fever might be cited as one example. The sequence often went as follows: malnutrition plus typhoid infection plus treatment by an extremely limited diet—the total result being attributed to the typhoid infection alone. Contrast this with the modern treatment of typhoid fever where great emphasis is placed on meeting the nutritional requirements of the patient.

What we have learned about tuberculosis serves as another example. Here is an infectious disease to which malnutrition is often a predisposing factor. The infection itself then produces a secondary state of malnutrition by upsetting the metabolic processes and the nutritional requirements. We finally learned that good nutrition plays an important part in the successful treatment of this disease. In the light of our present knowledge, it is easy to look backward and censure ourselves, but the important question is this: To what extent have we unmasked malnutrition incognito and to what extent is it still doing its dirty work unrecognized?

We have often engaged in controversies as to whether certain nutrients had any specific inhibitory effect on certain pathogenic organisms. Too often we have overlooked the practical fact that, regardless of its modus operandi, good nutrition is a basic physiologic requirement, which, to the degree neglected, leaves the human body to that extent devitalized, in addition to the debilitating effects of any other disease which may be superimposed. Probably, with reasonable accuracy in diagnosis, uncomplicated severe malnutrition rarely masquerades as other diseases. The danger lies in our overlooking less obvious malnutrition which is complicated, and often exaggerated, by concurrent pathology. This is a practical point in diagnosis which cannot be too strongly stressed.

Before the days of Pasteur much disease was explained on the basis of what would now be called metabolic disturbances. Pasteur's discovery of the bacterial origin of disease explained so many medical problems that there developed an unconscious tendency to overlook some of the other causes of disease.

Only a generation or two ago the doctor's role was to keep the patient from dying. He was called only as a last resort. He dealt primarily with very sick patients, with some one major causative factor predominating.

Today many of the doctor's problems are different. He often sees patients who are not *"sick"*, in the older sense of the word, but who have minor functional disturbances of various kinds. Such patients require more comprehensive study. Often little is revealed by the ordinary physical examination, and frequently it is impossible to pin the diagnosis down to any one thing. Nutritional disorders of various kinds are prominent among the factors contributing to such conditions.

5. *Some Considerations Concerning Diagnosis.*—The science of nutrition is relatively new. Procedures for nutritional diagnosis have developed slowly. The term malnutrition includes a group of diseases with as many manifestations as there are combinations of deficiencies of calories, protein, minerals, and the various vitamins. There is no one test upon which we can depend for complete nutritional appraisal.

However, differential diagnosis in the field of nutrition has improved greatly in the past few years. The clinician now has at his disposal a greater armamentarium of facts concerning the relationships of signs and symptoms to specific deficiencies. Indications are that much additional progress will be made in this field in the years immediately ahead.

Practically all medical diagnostic procedures fall within the following categories:

1. History
2. Physical examination
3. Laboratory procedures
4. Diet records
5. Therapeutic tests.

Without attempting to discuss these 5 categories with any degree of completeness, as far as nutrition is concerned, we might mention a few points in connection with each of these five types of diagnostic procedures:

1. *History.*—The chronically half-sick patient may have any number of complaints concerning how he feels, how he looks or how he acts. When any of the following complaints, signs, or symptoms come into the picture, malnutrition should receive at least some consideration in the differential diagnoses:

How he FEELS
- Lacks energy, feels lazy
- Tires easily
- Has a poor appetite
- Has a sore mouth, burning tongue
- Eyes itch and burn
- Eyes tire easily
- Has frequent colds and sore throat
- Has headaches (some forms)
- Feels older than his years

How he ACTS
- Cross and fussy
- Lacks mental alertness
- Broods or worries over trifles
- Has poor eyesight (some forms)
- Can't see well in dim light (night blindness)
- Work capacity low
- Finicky about food
- Acts older than his years

How he LOOKS
- Much overweight
- Much underweight
- Poor posture
- Rough bumpy skin of various kinds
- Pale skin due to anemia
- Poorly shaped bones
- Pot belly
- Spongy, bleeding gums
- Bad teeth
- Dull eyes
- Looks older than his years

These are just some of the complaints that may lead us to consider nutritional difficulties in making the diagnosis.

2. *Physical Examinations.*—Usually in the milder forms of malnutrition, little is revealed by the physical examination. However, certain signs which are often associated with malnutrition are easily overlooked. *For example,* appearance of chronic fatigue, pallor, rough skin, bad posture, spongy bleeding gums, sore red tongue, crusty eyelids, photophobia, sores at the angles of the mouth.

3. *Laboratory.*—It is outside of the scope of this discussion to go into laboratory procedures. However, there is one simple test, the value of which has often been overlooked. It is the hemoglobin determination. The few mass studies of hemoglobin levels, made in various sections of the country, have indicated that anemia is very common.

At what hemoglobin level do we consider a person anemic? This question is often asked. In answer we might say that *any* hemoglobin level *below the physiological optimum* warrants attention. If 14 to 16 grams of hemoglobin per 100 cc. of blood is optimal, why set as a standard a purely arbitrary level below this range?

In areas where hookworm, malaria, or other anemia-producing diseases are endemic, these cannot be ignored. However, a person can have anemia-producing diseases superimposed on a state of chronic malnutrition.

4. *Diet Records.*—Valuable information can be brought to light by the use of diet records. While

they yield only circumstantial evidence, diet records or "food diaries", in which the patient lists all foods eaten each day for a week, often point up dietary deficiencies. Obviously such records are more valuable if the approximate amount of each food is given. For practical purposes this can be given in household measurements (cups, tablespoons, teaspoons, etc.). One of the chief values of such a record is that it gives the physician a basis upon which to work in attempting to improve the patient's diet. If he can take the patient's own records and suggest more of *this* and less of *that* type of food, it is easy for the patient to understand and follow suggested changes. Recommendations to *"eat a balanced diet"*, or to *"get more vegetables"* are too vague and indefinite to stimulate more than a perfunctory response. Subsequent diet records are of value in measuring the patient's response to recommendations for improving his diet.

5. *Therapeutic Tests.* — Therapeutic tests are among the most reliable tests available for the differential diagnosis of specific nutritional deficiencies. Since a number of nutrients are now available in pure form or as concentrates, therapeutic tests are taking on greater practical significance. Such tests may have different degrees of specificity. It would seem that they could be used much more widely as a fact-finding procedure.

In malnutrition the etiologic agent, so-called, is the lack of something rather than the abnormal presence of something. The lack may be due to an intake below normal requirements, to increased needs, or to factors which interfere with efficient utilization. In any case, we have made only the first step in the diagnosis when we learn *"What"* is lacking. The important question is *"Why."* While we must determine the immediate cause, we must also search for the underlying factors which are basically responsible for the condition; in other words, "Why." It is toward these underlying causes that effective corrective measures must be directed. While acute conditions often require heroic measures, the average case of malnutrition is of a mild chronic nature and the corrective measures may seem rather hum-drum and undramatic to the patient—*and* the doctor. The condition is often intimately associated with, or due to, food patterns and habits of long standing which are hard to change.

Usually there is no strong motivating influence of the type generated by an emergency situation. Thus, a regimen must be set up based not only on what would be good for the patient under ideal conditions, but also considering *what he is likely to do under existing conditions.* Not forgetting the difficulties in differential diagnosis of nutritional status, probably the most difficult part of the whole process is to get new food habits established and to make them stick.

NUTRITION—A PROBLEM OF PREVENTIVE MEDICINE

The American public is gradually learning to appreciate the value of the physician as a guide and counselor in matters pertaining to health as well as a "very present help in time of trouble". In the past, the physician was called upon only in emergencies. He was expected to accomplish dramatic results when everything else had failed—and that is what he did. He had too little opportunity for *health guidance* of his patients. His opportunity to use his knowledge of nutrition was largely confined to prescribing diets for babies and sick people. Formerly, the expression, "He put me on a diet", meant that something was radically wrong and necessitated drastic changes in food intake.

Fortunately this attitude is changing toward the more efficient and effective use of the doctor's special training. Seeing the doctor twice a year is becoming a habit with some people and does not automatically label them as psychoneurotics or hypochondriacs. Thus, the popular demand for the practice of preventive medicine by the family physician is gradually increasing.

In the field of nutrition, we have an opportunity to carry the concept of preventive medicine a step further than has been done in the prevention of clear-cut disease. We must strive toward the highest health levels which are possible of attainment. Freedom from obvious disease is not enough. The whole range of health levels, from fatal disease states, on the one hand, to buoyant health on the other, is greatly affected by the food habits of the individual. While poor nutrition can, and often does, contribute to mortality, optimum nutrition can contribute to that state of health which is even better than average—that extra portion of good health that some individuals have. Nutrition, good or bad, makes its contribution to all grades of health status. Poor

nutrition can kill us, while optimum nutrition can take us far on the way toward optimum health.

We would not say that good nutrition guarantees good health, but we can say that optimum health is impossible in the absence of good nutrition. Thus, nutrition is a fundamental factor upon which many other factors are conditioned.

In the treatment of any disease we would do well to remember those fundamental physiologic requirements which exist and which may be altered by the presence of disease. With a large percent of the population admittedly existing on suboptimal diets, we could increase our therapeutic successes by giving more attention to known nutritional requirements as one of the first steps in therapy.

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Aspirin May Contribute to Hemorrhage.

Recent evidence that aspirin or the other salicylates may lower the prothrombin (clotting factor) in the blood and thus contribute to hemorrhages reemphasizes the need for caution in the use of this drug. *The Journal of the American Medical Association* for March 18 advises in an editorial which says:

"Aspirin, or acetylsalicylic acid, has been used in enormous quantities throughout most of the world for some forty-five years. Many persons seem to have a mild idiosyncrasy to this drug or to the other salicylates and consequently avoid its use; the vast majority take it with apparent impunity. . . . Deaths from aspirin have been reported; these appear to have been more frequent in England than in this country.

"New evidence indicates that aspirin and the other salicylates produce a physiologic effect which cannot be ignored. About 1941, C. F. Huebner and K. P. Link of the Wisconsin Agricultural Experimental Station discovered that dicumarol [an anticoagulant obtained from sweet clover] when given by mouth induces a shortage of prothrombin in the blood. They found also that dicumarol could be qualitatively degraded to salicylic acid. Later, Link and his co-workers tested the action of salicylic acid itself. When single doses of salicylic acid were given to rats kept on an artificial diet which was low in vitamin K, a decrease of the prothrombin in the blood occurred. Also if the salicylic acid was given over a long period, hemorrhages resulted; if vitamin K was administered the hypoprothrombinemia [prothrombin deficiency] did not develop. More recently other investigators found that salicylic acid would act in the same way on human beings and that when vitamin K was administered simultaneously with the salicylic acid the fall in prothrombin levels was prevented. The administration of vitamin K after the production of hemorrhage by dicumarol or salicylic acid, however, is of little use.

"These observations offer a plausible explanation of such events as the report of a British physician in 1943 concerning the development of nosebleed in three cases after taking large doses of aspirin or the frequent occurrence of bleeding in patients with rheumatic fever who are receiving large doses of salicylates. . . . When . . . hemorrhages occur after the taking of dicumarol or the salicylates, vitamin K is not likely to be effective; then proper treatment may include the giving of a blood transfusion.

"The mass of evidence so far available indicates that aspirin and the salicylates are among the least toxic of active pharmacopeial preparations. This status, however, should not be interpreted as an excuse for failure to recognize hazards connected with their abuse or even under certain circumstances of established usage. Their ability to produce hemorrhage in some cases appears to be counteracted by early administration of vitamin K. It does not now seem necessary to administer vitamin K to all patients receiving salicylates; those who are to receive large doses for a long time may appropriately be given vitamin K."

THE SUN AND THE HEAT DISEASE*

ST. GEORGE T. GRINNAN, M.D.,
Richmond, Virginia.

The sun, like some drugs, can cure and can kill. Animals often show more intelligence than man when they seek the shade. Man's brain endures intense cold—sixty degrees below zero without injury. At the Arctics men have endured sixty degrees below zero or one hundred and sixty degrees below body temperature.

In heat 30 degrees above body temperature man may be made ill or killed. Extremes of heat and cold require rest. During blizzards in the northwest the Indian often remains wrapped in a blanket in his tent for days. In hot countries a rest of several hours in the day is common.

Jacques Loeb said that if man's temperature was 90.6 instead of 98.6 he could easily live for 500 years. Man is so hot he burns out quickly.

There is more intelligence in the temperate zone than in the tropics. Alexis Carrel says Northern France is more intelligent than Southern France. Very rarely a genius is found in the tropics, although Rabindranath Tagore of India was a Nobel prize man. Constantine, of Africa, who revolutionized medicine, was certainly brilliant, he lived about fifteen hundred years ago.

Look at the Central American countries, Mexico to Bolivia, heat holds them back; Tropical Africa for the pot bellied Ibo.

Lowell Thomas spent two years in India; he said heat is the cause of India's helplessness. Read his book "The Black Pagoda". The untouchables and Dravidians are helpless and hopeless. The Englishman dares not stay in India more than seven years at a time, and then he has to spend a part of every year in Darjeeling or Kashmir, foothills of the Himalayas. The turban and white clothes for sun reflectors protect some people in hot zones. In some of the islands of the Pacific the radiation is so great that only the lowest form of humanity live there. In India the woman-child has a baby at 12 or 13, and dies of old age at 36.

The blond is a product of Scandinavian countries. In Africa the negro was tanned black or he could not have lived there.

The negro has a tropical lung, expansion one-half to one inch, while the white man has an expansion of 3 to 4 inches. The blond would become extinct in the tropics; the negro would become extinct north of latitude 45.

What became of the 500 negroes taken to New Hampshire about 1845 or 1850 to be free? They all died out.

What became of the 16,000 negroes taken to England in the seventeenth century? They all died out.

What became of the thousands of negroes taken to Rome as slaves? Only a Neapolitan tint remains. Rome is the same latitude as Philadelphia.

Usually writers seek a cool place in hot weather to do their work. We get 30 per cent more radons and thorons in the night than in the day; the brain batteries are re-charged while we sleep.

One of the seven wise men of the world, Roger Bacon, was put in jail about 1250 for ten years for saying he could extract sun beams out of cucumbers. He was seven hundred years ahead of his time when he ate sunshine—vitamins—in the shade.

In 1901, in New York City, I saw many sunstrokes that were brought into the hospital, usually from 10:00 P. M. to 3:00 A. M. The temperature was 105 to 108. All whose temperatures reached 107 died. Recovery was slow, and good recovery required several months. In some cases mentality was permanently impaired. We have here in Richmond many cases of the heat disease, especially in young people, with a history of sun exposure, hatless, bare arms and chest—the dangerous sunsuit—resulting in a temperature as long as ten days, with headache, loss of appetite, and a feeling of being weak and tired.

One young college boy played golf all day, hatless, bare arms and part of chest. He was a blond and was sick two months, in spite of salt treatment by several doctors.

In Arlington, July, 1943, an infant, age about fifteen months, was put in the sun for a tan. He was left too long, had a sunstroke and died the same day.

The Canadian medical schools recommend exposure of one-eightieth of the body for sun tan—only

*Read at the regular meeting of the Richmond Academy of Medicine, November 9, 1943.

hands and face. We have to beware lest the hatless child with a sun suit does not become the repeater in school; especially is this true of blonds.

A boy of sixteen wanted a sun tan. He exposed himself in the sun on a hot porch roof for an hour each day for some weeks. He went to a mental sanitorium for six months. We not only have lunatics but solar-tics.

The sun suit is often the cause of the heat disease.

Mothers need better advice than they now get about the protection of infants and children from the summer sun, with no hat and too much of the body exposed if the sun is 30 degrees above the horizon.

The air pilot in India wears a sun helmet and takes salt. We must keep in mind that the sun's rays contain 10 per cent x-ray.

The local paper reports "Somewhere in the South Pacific, September 6th (delayed) More Concern Felt Over Sunburn Than Shrapnel Wound". A sailor was struck in the shoulder by a piece of shrapnel from a Jap bomb on Guadalcanal and it knocked him out. But when he came to the first aid station the doctor was more concerned about the sunburn received while lying unconscious in a fox hole than he was about the shrapnel wound.

I have seen many heat disease cases every summer, but prior to 25 years ago the ten day summer fever was not recognized as a result of sun heat.

There are more people in mental institutions in Virginia than there are in colleges. The further one goes into hot countries the lower the I.Q. sinks.

In hot weather more people are allergic to ragweed than to reason.

Soldiers have died from sunstroke in army camps in the South after marches in hot summer sun with heavy packs—some first classed as drunks, then the guard-house, the hospital, and death.

Children show retarded growth, like domestic animals, and inferior size under tropical heat. Vital capacity of Filipino college students is only a little more than half as great as that of students of the northern part of the United States (Dr. C. A. Mills, *J.A.M.A.*, October 31, 1943, page 531—Climate and Disease).

We should pay more attention to the heat disease.

925 West Grace Street.

Penicillin Effective in Bone and Blood Infection.

The successful treatment with penicillin of a case of infection of a bone (osteomyelitis) and of the blood (septicemia) with Staphylococcus albus is reported in *The Journal of the American Medical Association* for April 8 by O. Charles Ericksen, M.D., Sioux Falls, S. D.

The patient, a white man aged 29, a farmer, was admitted to the McKennan Hospital, Sioux Falls, on October 10, 1943, with the complaints of weakness, chills and fever and also pain in the right hip. Treatment with sulfonamide drugs was without any apparent benefit. On November 4, treatment with penicillin was started, with immediate improvement. Blood cultures taken daily following the inception of the penicillin treatment at no time revealed any bacterial growth. He had some febrile reactions to the penicillin, the temperature, following each injection into a vein, ranging from 102 to 106.4 F., for about one-half hour or so but not preceded by a chill and not causing the patient to feel at all ill. When administration was given by injection into a muscle the temperature at no time was above normal. On November 18 the patient was allowed out of bed and on the following day was sent home. When last seen the following January 4 he said he felt fine and had no complaint whatever.

Commenting on the case Dr. Ericksen says that "I feel that the results obtained, to say the least, were miraculous. The patient improved almost instantly and declared that he had a feeling of well being. The febrile reactions in this case, in all probability, were due to pyrogenic [fever inducing] substances that were in the penicillin. When the penicillin was given intravenously, violent febrile reactions were obtained, but when it was given intramuscularly these febrile reactions did not occur."

PUBLIC HEALTH

I. C. RIGGIN, M.D.,
State Health Commissioner of Virginia.

The report of the Bureau of Communicable Diseases of the State Department of Health for May, 1944, as compared with the same month in 1943, and for the period of January through May, 1944, compared with the same period in 1943, follows:

	May 1944	May 1943	Jan.-May 1944	Jan.-May 1943
Typhoid and Paratyphoid Fever	10	7	44	51
Diarrhea and Dysentery	218	182	897	602
Measles	2,570	1,705	15,712	7,852
Scarlet Fever	265	191	1,748	969
Diphtheria	14	14	104	152
Poliomyelitis	2	2	6	12
Meningitis	50	98	370	590
Undulant Fever	5	1	17	10
Rocky Mountain Spotted Fever	5	0	7	1
Tularemia	2	0	18	24

CANCER MORTALITY IN VIRGINIA

Although malignant growths of all types are included in the term "cancer" in vital statistics, the great majority of deaths classified under this title are reported as carcinoma, sarcoma, or epithelioma. Deaths reported from cancer of two or more parts of the body are assigned, according to standard practice, to the original site if stated, rather than to the organ of metastasis.

During the past thirty years in Virginia, a consistent upward trend is seen in mortality for cancer in both the white and colored races. Total cancer rates increased from 48.1 per 100,000 population in 1913 to 82.4 in 1943. The white rate of 51.3 three decades ago had risen to 84.8 last year; and the colored rate of 41.1 in 1913 had increased to 74.8 in 1943. Throughout the entire period, the white rate was much in excess of the colored. Last year in the State, there were 2,363 deaths from cancer, of which 1,850 were in the white race and 513 in the colored.

Deaths from cancer occur at all ages, although maximum rates are found in the later years. The death rate in Virginia last year for ages under 25 years was 3.4 per 100,000 population. The rate rises gradually to age 45 years, after which it increases abruptly. Mortality rates per 100,000 population for ages past 24 years are as follows: 25 to 44 years, 32.3; 45 to 54 years, 147.5; 55 to 64 years, 291.2; 65 to 74 years, 522.9; and 75 years and over, 934.7.

Cancer death rates among females in both the white and colored races exceed those among males. In 1943 in the State, female deaths constituted 57 per cent of cancer deaths. There were 1,343 female deaths, of which 1,030 were white and 313 colored; and 1,020 male deaths, of which 820 were white and 200 were colored. Ten years ago, female deaths comprised 59 per cent, and male deaths 41 per cent. It is interesting to note, during the period, the increasing proportion of male cancer deaths relative to female. As about 50 per cent of fatal cancers among females and about 15 per cent among males affect accessible sites, the male rate would be particularly subject to apparent gain in later years on account of increased medical knowledge and improved diagnostic methods.

According to site, the digestive tract and peritoneum showed the highest ratio of deaths, constituting 43 per cent of cancer mortality in Virginia in 1943. Among this group, cancer of the stomach and duodenum lead, with 344 deaths. Next came cancer of the intestines, rectum and anus, with 335 deaths. Then followed cancer of the liver and biliary passages, 205 deaths; next, the pancreas, 79; the esophagus, 33; and other sites, including the mesentery and peritoneum, 28 deaths. Cancer of the uterus totaled 336, and other female genital organs, 57. There were 243 deaths from cancer of the breast; 151 of the respiratory system; 138 of the male genital organs; 84 of the urinary organs (male and female); 75 of the buccal cavity and pharynx; 56 of the skin; 39 of the brain and other parts of the central nervous system; and 160 of other and unspecified sites.

The rank of cancer as a cause of death in Virginia has changed materially during the past three decades. In 1920, for the first time, cancer appeared among the leading causes of death in the State, occupying seventh position. Ten years later, this cause

held the same position. By 1943, cancer mortality had risen to fourth place. The advance in position, however, has been due not only to the increase in mortality rates for this cause, but in the decline in death rates from certain diseases which, in earlier years, outranked it, notably tuberculosis, pneumonia and diarrhea.

As cancer is largely a disease of middle adult life and old age, no accurate measure of rate increase can be made which does not make allowance for the aging of the population. Even when the effects of age changes in the population have been eliminated from our figures by standardization, cancer mortality in Virginia shows a significant upward trend throughout the years. However, there is a generally accepted belief that improvement in diagnostic techniques, resulting in more complete and accurate diagnosis of this disease, is responsible for a considerable proportion of the recorded gain in cancer mortality.

CASE REPORT OF MATERNAL DEATH

MATERNAL HEALTH COMMITTEE,
MEDICAL SOCIETY OF VIRGINIA

The patient was a 45 year old white multipara, gravida 13, para 12, at term. She had no prenatal care and was first seen by a physician because of lower abdominal pain beginning approximately six hours following a fall. The physician who saw the patient did not examine her, but advised that a midwife be called. She continued to have pain and two hours later had a severe abdominal pain followed by faintness and nausea. The patient was later taken to the hospital by her husband and at that time, nine hours after the onset of abdominal pain, there was evidence of profound shock and slight vaginal bleeding. Blood pressure 160/80. Laboratory studies revealed red blood count 4,260,000, hemoglobin 78 per cent, and white blood count 19,950. Urinalysis (catheterized) showed four plus albumin and four plus R.B.C.

A diagnosis of ruptured uterus was made and, nine hours after admission, Caesarean section was performed. There was a large amount of free blood in the peritoneal cavity and a rupture of the lower uterine segment extended into the broad ligament and vaginal vault. Following disengagement of the vertex there was profuse bleeding. A supracervical hysterectomy was done. The patient died before bleeding could be controlled.

COMMENT

It is believed that this case should be classified as a non-preventable obstetrical death. Apparently rupture of the uterus occurred as a result of trauma. These are factors that should be evaluated. The patient did not have adequate professional care before being sent to the hospital. She had no prenatal care and had a toxemia of pregnancy as revealed by findings at the time of admission to the hospital. This shows the importance of knowing blood pressure under usual conditions to get a correct imperssion when abnormalities arise. A blood pressure of 160/80, far from the shock level, suggests a high pressure before the onset of the bleeding. Since the patient was admitted to the hospital with evidence of intra-abdominal bleeding, it is assumed that the delay between the time of admission (6:00 A. M.) and operation (3:00 P. M.) must have been due to the time involved in the treatment of shock and the securing of blood donors. The amount of bleeding encountered during operation was extensive. Earlier operation and facilities for replacement of blood loss may have altered the outcome. Uncontrollable conditions may have been present, which prevented any other type of management.

MENTAL HYGIENE

On Friday, June 9, the Mental Hygiene Society of Virginia, cooperating with other health groups, joined with the Richmond Health Council in presenting a symposium on health education. Dr. M. A. Tarumianz, Superintendent of the Delaware State Hospital, and Director of Mental Hygiene Clinics for the State of Delaware, was the guest speaker, representing the Mental Hygiene group. Dr. Tarumianz presented a broad comprehensive plan of action which not only would be applicable to our present situation coming out of the war, but also for the near and distant future. Dr. O. B. Darden in a prepared discussion, which was not made at the meeting because of conflicting engagements, has covered these points quite adequately and it is hoped will be presented at some opportune time. Dr. H. Marjorie Sloane, Psychiatrist of the Children's Memorial Clinic, also discussed the paper in a very helpful and interesting manner. Other discussants brought out the point that there was a great need for psychiatry in industrial establishments, and a still greater need for a simple and understandable presentation of Mental Hygiene through pamphlets, lectures, radio, schools, etc.

Dr. Tarumianz was presented to the assembled group by Dr. Joseph E. Barrett, president of the Mental Hygiene Society.

A feature of Dr. Tarumianz's brief visit to Richmond, was a luncheon meeting at the Commonwealth Club, with Dr. Howard R. Masters as the host. In addition to Dr. Tarumianz, others who were guests of Dr. Masters were Mr. W. Dan Ellis, Dr. J. Shelton Horsley, Dr. J. Asa Shield, Dr. H. C. Henry, Reverend J. J. Scherer, Dr. R. Finley Gayle, Jr., Dr. Dewey Davis, Dr. James K. Hall, Dr. Joseph E. Barrett, and Mr. F. W. Gwaltney.

The Executive Committee of the Mental Hygiene Society had a brief meeting after the luncheon, with Dr. Joseph E. Barrett, presiding, and elected Mr. Harold I. Baumes, Executive Secretary of the League of Virginia Municipalities, as Treasurer of the Society, and made some preliminary plans as to the work which the Society is to do.

WOMAN'S AUXILIARY
to the
MEDICAL SOCIETY OF VIRGINIA

President—MRS. W. CLYDE WEST, Alexandria.
President-Elect—MRS. PAUL C. PEARSON, Turpin.
Recording Secretary—MRS. C. C. SMITH, Norfolk.
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Treasurer—MRS. REUBEN F. SIMMS, Richmond.
Chairman, Press and Publicity—MRS. E. LATANE FLANAGAN, Richmond.

Revisions.

The attention of the auxiliary is called to the report of the National Chairman of Revisions in the March issue of the *Bulletin*.

This report is concerning the new proposed constitution and by-laws of the Woman's Auxiliary to the American Medical Association prepared by a member of the staff of the Bureau of Legal Medicine and Legislation and approved by the Advisory Council of the Woman's Auxiliary.

The Board of Directors recommended that action should not be taken upon the proposed constitution and by-laws until the annual meeting in June, 1944.

Whereas the State Auxiliary patterns its constitution and by-laws after the National, and the County Auxiliaries likewise after the State, this new document will be of special interest and concern to all.

MRS. WILLIAM LETT HARRIS,
Chairman of Revisions.

Auxiliary Meetings.

WARWICK

The Warwick County Medical Auxiliary held a

luncheon meeting May 3, at the Hi-Hat Club. Nineteen members and three guests were present. Four new members were welcomed by the auxiliary.

A musical program of piano and vocal selections followed.

The auxiliary is to be responsible for hostesses for the Hospitality House every third week.

The members will contribute and arrange flowers at the Hospitality House and USO Club for the month of August.

The auxiliary for several years has made and given layettes to indigent obstetrical cases in the city. This year the visiting nurses have requested fifteen layettes.

MARION HOLDERBY (MRS. C. E. H.),
Chairman, Press and Publicity.

NORFOLK

A general meeting and tea was held May 17 at the home of the president, Mrs. R. M. Reynolds, at Ocean View.

Mrs. Southgate Leigh, Jr., president-elect, will become president at the October meeting. A slate of nominations for officers was presented by Mrs. W. E. Butler for the Nominating Committee. The slate was adopted unanimously and the officers will be voted on in the Fall. It presented the names of Mrs. C. M. McCoy for president-elect; Mrs. Charles Lupton, Mrs. James Anderson, and Mrs. John St. George, vice-presidents in the order named; Mrs. Kenneth Wallace, recording secretary; Mrs. M. F. Brock, assistant recording secretary; Mrs. A. K. Wilson, treasurer; Mrs. Mallory Andrews, assistant treasurer; Mrs. P. B. Parsons, corresponding secretary; Mrs. Brock Jones, Jr., assistant corresponding secretary; Mrs. C. C. Smith, parliamentarian; Mrs. R. S. Kight, historian.

Mrs. Reynolds announced the annual meeting of the American Medical Association and the Woman's Auxiliary to the Association to take place in Chicago in June. She named as delegates to the State Convention of the Woman's Auxiliary to the Medical Society of Virginia in Richmond, October 23-25, Mrs. Leigh, Mrs. McCoy, Mrs. S. Byron Pope, Mrs. Julian Rawls, and Mrs. Horton, and as alternates, Mrs. Brock, Mrs. Butler, and Mrs. A. K. Wilson.

It was reported that pictures of all presidents of the Medical Society would be hung in their library in the Medical Arts Building under the auspices of the auxiliary by Fall.

Officers and chairmen read their reports. These showed the auxiliary to have 82 members to date and Mrs. Leigh introduced as the newest member, Mrs. W. C. Salley.

Tea was served following the meeting and Mrs. Reynolds was assisted by Mrs. Butler, Mrs. Richard Peake and Mrs. Brock.

CLARA P. BROCK (MRS. M. F. BROCK),
Chairman, Press and Publicity.

RICHMOND

The May meeting of the Auxiliary to the Richmond Academy of Medicine was held on the 19th. In the absence of the president, Mrs. A. G. Shetter, Mrs. L. H. Apperson, vice-president, presided. Mrs. Clyde West of Alexandria, president of the Woman's Auxiliary to the Medical Society of Virginia, was present and brought greetings and a message of encouragement from the other auxiliaries in the State. The guest speaker was Mrs. Thos. W. Murrell of Richmond, who spoke on "Flower Arranging".

This was the last meeting until September, at which time will be held the election of officers and a discussion of plans for the State convention to be held in Richmond in October.

MRS. B. B. BAGBY, JR.,
Publicity Chairman.

During Food Shortages

It is well to bear in mind that *dried brewers yeast weight for weight, is the richest food source of the Vitamin B. Complex.* For example, as little as 1 level teaspoonful (2.5 Gm.) Mead's Brewers Yeast Powder supplies: 45 per cent of the average adult daily thiamine allowance, 8 per cent of the average adult daily riboflavin allowance, 10 per cent of the average adult daily niacin allowance.

This is in addition to the other factors that occur naturally in yeast such as pyrodoxin, pantothenic acid, etc.

Send for tested wartime recipes, the flavors of which are not affected by the inclusion of Mead's Brewers Yeast Powder. Mead Johnson & Company, Evansville, Ind., U.S.A.

BOOK ANNOUNCEMENTS

Books received for review are promptly acknowledged in this column. In most cases, reviews will be published shortly after the acknowledgment of receipt. However, we assume no obligation in return for the courtesy of those sending us same.

Radiation and Climatic Therapy of Chronic Pulmonary Diseases. With Special Reference to Natural and Artificial Heliotherapy, X-Ray Therapy, and Climatic Therapy of Chronic Pulmonary Diseases and All Forms of Tuberculosis. Edited by EDGAR MAYER, M.D., F.A.C.P., F.A.C.C.P., Assistant Professor of Clinical Medicine, Cornell University Medical College, New York City; etc. With the Collaboration of Twenty-two Contributors. The Williams & Wilkins Company, Baltimore. 1944. xiii-393 pages. Cloth. Price $5.00.

Technique In Trauma. Planned Timing in the Treatment of Wounds Including Burns. From the Montreal General Hospital and McGill University. By FRASER B. GURD, M.D., C.M., and F. DOUGLAS ACKMAN, M.D., C.M. In Collaboration with John W. Gerrie, M.D., C.M., Edward S. Mills, M.D., C.M., Joseph E. Pritchard, M.D., and Frederick Smith, M.D. Philadelphia, J. B. Lippincott Company. 1944. vii-69 pages. Illustrated. Cloth. Price $2.00.

Minor Surgery. Edited by HUMPHRY ROLLESTON and ALAN MONCRIEFF. Philosophical Library, New York. 1944. viii-174 pages. Illustrated. Cloth. Price $5.00.

The Management of Neurosyphilis By BERNHARD DATTNER, M.D., Jur. D., Associate Clinical Professor of Neurology, New York University Medical College. With the Collaboration of Evan W. Thomas, M.D., Gertrude Wexler, M.D., and Joseph Earle Moore, M.D. Grune & Stratton, New York. 1944. 398 pages. Cloth. Price $5.50.

Office Endocrinology, Second Edition. By ROBERT B. GREENBLATT, B.A., M.D., C.M., Professor of Experimental Medicine, University of Georgia School of Medicine; Director, Sex Endocrine Clinic, University Hospital, Augusta, Georgia. Foreword by G. LOMBARD KELLY, M.D., Dean, University of Georgia School of Medicine. Charles C. Thomas, Baltimore, 1944. 243 pages. Price $4.00.

It would be apt if this book had a subtitle indicating that six-sevenths of the pages are devoted strictly to problems concerning the female and male sex hormones and their immediate functional relatives.

The major portion of the chapters deals with female endocrinology. In addition to the usual subjects in this category there are discussions of the hormonal therapy of uterine fibromyomata, micturitional disorders in the female due to endocrine imbalance and hirsutism. Of interest is the therapeutic trend to relatively more frequent use of androgens in female disorders and to relatively less frequent use of gonadotropins. A second division contains skeleton summaries of the physiological actions and indications of some of the hormones. Notes on pellet implantations and a table of the natural estrogens with the proprietary names and the usual dosages are included. The third section concerns itself with the more common endocrine conditions in the male. This subject was not treated in the first edition.

The book falls short in discussions of subjects which are aside from its main interest, chiefly because of enforced brevity. For example, in the chapter on panhypopituitarism no mention is made of the difficult differential diagnosis from anorexia nervosa, a point of marked practical significance. Again, in adolescent acne, the erroneous impression is given that estrogenic therapy is used solely in the female.

This synoptic manual is highly serviceable for use in the management of the common endocrine disorders in women. It offers effective therapeutic advice in this rapidly advancing field with many alternatives when the measures in current practice are found wanting.

M. E. B. OWENS, JR.

Small Community Hospitals. By HENRY J. SOUTHMAYD, Director, Division of Rural Hospitals, The Commonwealth Fund. And GEDDES SMITH, Associate, The Commonwealth Fund. New York, The Commonwealth Fund. 1944. 182 pages. Cloth. Price $2.00.

For more than a decade and a half The Commonwealth Fund of New York City has helped to finance and guide the development of rural hospitals, distributed over a number of states. The emphasis has been broad, including every aspect of hospital functions, standing and education of staff, and community relationships.

This volume tells an interesting story replete with rich experience, wisdom, and common sense. The final chapter *The Hospital and the Countryside* is predictive, pointing to the advantages of organizing smaller community hospitals around a medical center on a democratic basis to share the benefits of group action. Many think that this pattern of hospital organization is inevitable in the future. *Small Community Hospitals* is a "must" for those in any way interested in such institutions.

W. T. S.

VIRGINIA MEDICAL MONTHLY

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WYNDHAM B. BLANTON, M. D.,
Editor Emeritus

M. PIERCE RUCKER, M. D.,
Editor

AGNES V. EDWARDS
Business Manager

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The Annual Meeting

THE Annual Meeting, October 23-25, in Richmond, promises to be an excellent one. Already more interest than usual is being shown. The doctors throughout the State have indicated that they want a meeting that will help them with their problems at home. They are still interested in the war, of course, and what their confreres are doing in war medicine and surgery, but they realize they have a job at home and they want all the help they can get.

The Program Committee was embarrassed by the number of good papers that were submitted. They had to decline more than half. Such an abundance of papers insures a good scientific program, but it makes the task of the Program Committee a hard one. It is the hope of the Committee that the authors will send the papers for publication in the MONTHLY. The program will follow the usual pattern with several important exceptions. On Monday there will be meetings of the Council and the House of Delegates. The golfers will be properly cared for by Dr. T. W. Murrell and his committee. On Monday evening there will be the formal opening of the session at which time Governor Darden will address the meeting on the medical needs of the State. We do not have to tell our readers that Governor Darden is an interesting and forceful speaker. No Virginia doctor should miss this meeting, for whether you will agree with him or not, Governor Darden will give you something to think about. Tuesday morning there will be scientific papers by members of the Society and one by an invited guest, Dr. Alexis F. Hartmann, prominent pediatrician of St. Louis. In the afternoon there will be clinics and round table discussions at the Medical College of Virginia on some subject such as peptic ulcer. For Tuesday evening, Dr. Haag and his committee have prepared an entertainment designed to get your mind off of medicine and give you a bit of relaxation. On Wednesday morning a symposium on penicillin is being planned, speakers to be announced later. The completed program will appear in a future issue of the MONTHLY.

The General Practitioner

"There are men and classes of men that stand above the common herd: the soldier, the sailor, and the shepherd not infrequently; the artist rarely; rarelier still the clergyman; the physician almost as a rule. He is the flower (such as it is) of our civilization; and when that stage of man is done with, and only remembered to be marveled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race. Generosity he has, such as is possible to those who practice an art, never to those who drive a trade; discretion, tested by a hundred secrets; tact, tried in a thousand embarrassments; and what are more important, Heraclean cheerfulness and courage. So it is that he brings air and cheer into the sickroom, and often enough, though not so often as he wishes, brings healing."

ROBERT LOUIS STEVENSON.

RECENTLY a distinguished visitor addressed the Social Welfare Interpretation Division of the Richmond Community Council on the "Newer Types of Medical Practices". He thought that the practice of medicine of the future would be in groups and spoke disparagingly of the general practitioner's little black bag, as if the doctor carried his entire armamentarium there. I do not know where our visitor got his idea about the general practitioner, certainly not in Virginia. Dr. John Brown and Sir James Barrie in their delightful pictures of the general practitioner perhaps have over-emphasized his quality of heart and the hardships he has to endure, so that the public thinks of the country doctor as being big-hearted and willing, but perhaps a little lacking in knowledge, especially the newer knowledge, of disease. The general practitioners we know have this fine quality of heart, although they try to conceal it as much as possible. In addition they have an up-to-date knowledge of disease. They make intelligent use of laboratories. When a central laboratory is not convenient, they have a laboratory of their own with a competent technician in charge. They are not weak on diagnosis as was implied, but send their patients to hospitals because methods of treatment have become complicated and the home no longer has facilities for giving modern treatment. To equip a home for so simple a thing as the conduct of a normal labor case, and be prepared for such emergencies as might arise, would cost as much as the hospital charges for the care of such cases. A seriously ill medical patient may need oxygen, blood transfusions, intravenous fluids, daily check on the concentration in the blood of the drugs used, etc. It is uneconomical to do this in the home, even if it were possible.

Our guest criticised the hospital service associations, which were started by doctors, on the ground that they did not try to keep people from going to hospitals. He made a comparison with fire insurance companies and said that the latter would go broke if they did not keep up a fire prevention campaign. Many of his audience got the impression that doctors are not interested in disease prevention and took no part in that aspect of medicine. A moment's reflection would show the foolishness of such a comparison. Any one of a dozen discoveries in preventive medicine has saved more money, to say nothing of lives and suffering, than all the fire prevention tactics. We would be willing to wager that more worth-while preventive medicine is done in pediatrics alone, than is accomplished in fire prevention by all the fire insurance companies combined.

So many inroads have been made in the general practitioner's domain that the idea has gone forth that he has been outmoded. In the past few years a reaction has set in, and now there is a growing feeling that he is really necessary and that he fits in with the general scheme of civilization. Our own opinion is that there will always be a

family doctor as long as there is a home and a family. He is a part of that picture. The only trouble with the general practitioner is that there are not enough of them.

Medicine has been criticised because of the uneven distribution of doctors. The same criticism applies to other necessities of life such as sunshine and rain. No one has been able to do anything about the weather, but we can do something about the doctor. Doctors are human and they go where they think they are wanted and where there are satisfactory living conditions for their families. Any community that is without a doctor can get one (in normal times) if they show enough interest. A well-equipped office and a nice home would land many a man just starting out in his career, and possibly some who have made a poor start. Such a procedure would be less costly than establishing "Mayo Clinics" at every cross roads. Besides it would more nearly fit the needs and would require no legislative enactments.

Tropical Medicine

THE War has brought many new responsibilities to the medical profession. It has had to send the best part of its membership to the armed forces. With reduced personnel it has had to care for seemingly increased needs of the civilian population. It has had to defend itself against political attack. In addition to all of this, it must learn a new branch of medicine that has not been taught in the medical schools.

Medical missionaries and others interested in tropical medicine in the past have had to take a course in tropical medicine in New Orleans or London, before going to the tropics for their practical experience. The Army maintains an excellent school in tropical medicine in Washington for its own personnel.* It seems likely that before long the tropical diseases will be coming to us. Distance and time so far as they were barriers to disease have been eliminated. A person who contracted a disease in Africa or New Guinea might well be in Minneapolis before he had any intimation that he was infected. Returning soldiers and sailors could easily introduce malaria to the upper Mississippi Valley and other parts of the country that have long been free from that disease. Already a considerable group of patients with filaria are being treated in Virginia. We will have to learn to recognize many intestinal parasites whose names we hardly knew a year ago. Last August a case was reported in the Proceedings of the Royal Society of Medicine of a woman who was treated in a London Hospital for eclampsia. She died undelivered and at autopsy it was learned that she had cysticercosis cellulosae of the brain. So even an obstetrician will have to know his tropical medicine.

It will not be possible for all of us to take courses in tropical medicine, but we can read about tropical disease as accounts are published in the journals, and we can discuss them in our medical meetings. Already Virginia doctors are familiar with amoebiasis, sprue, hook worm and pellagra, diseases that were formerly considered tropical or at least semi-tropical. We must enlarge our thinking to include onchocerciasis, Giardia lamblia infection, trypanosomiasis, schistosomiasis, kala-azar, and many others of which the editor has never heard.

*A new school of tropical medicine is being started on Treasure Island, in San Francisco Bay, which will be open to civilian teachers in medical schools.

Societies

James River Medical Society.

This Society, at a recent meeting, elected its delegates and alternates to the Richmond meeting of the State Society. Its present officers are: President, Dr. T. L. Driscoll of Columbia; vice-president, Dr. O. L. Huffman of Arvonia; and secretary-treasurer, Dr. Garland Dyches of Dillwyn.

Norfolk County Medical Society.

At the annual meeting of this Society on June 5, Dr. Claiborne Willcox was installed as president for the ensuing year, and the following were elected: President-elect, Dr. Foy Vann; vice-president, Dr. Robt. DuVal Jones; and secretary-treasurer, Dr. Lockburn B. Scott, all of Norfolk. Dr. Scott was elected for the twenty-sixth consecutive year to his position as secretary-treasurer. At this meeting, delegates and alternates were also named for the State meeting in Richmond in October.

The Southwestern Virginia Medical Society

Held its semi-annual meeting at Governor Tyler Hotel, Radford, May 5. The scientific program which started at 2:00 P. M. included discussions on:

Complicated Surgery of the Abdomen by Dr. George A. Wright, Marion.

The Value of Fluids in Infants and Children by Dr. R. H. DuBose, Roanoke.

Alkalosis by Dr. E. H. Hearst, Bristol.

Preliminary Report on Cataract Extraction through Vitreous by Dr. G. M. Maxwell, Roanoke.

After the program, the visitors inspected the Radford Community Hospital, following which there was a cocktail party and banquet at the hotel. Guest speaker at the evening session was Captain Louis E. Wice.

Dr. A. B. Graybeal of Marion is president and Dr. G. C. Williams of Pearisburg secretary of the Society.

While the doctors were having their scientific session, the ladies who accompanied them enjoyed cards in the hotel lounge.

The Wise County Medical Society

Held its Spring meeting on May 11 at the Monte Vista Hotel, Big Stone Gap, as guests of the Stonega-Appalachia and Big Stone Gap physicians. There were twenty-two members and five visitors present, and all seemed to enjoy the chilled fruit and Four Roses cocktail before the special Steak Dinner.

After a short business meeting, the following scientific program was presented: Dr. C. L. Harshbarger, Norton, spoke on "Industrial Pulmonary Conditions and Diseases", illustrating this with x-ray films. This paper was interesting from many points of view, chiefly because of the recent compensation law changes to include some industrial diseases. Dr. R. L. Phipps, Clintwood, discussed this, including in his remarks the other accidents that occur relative to the chest region. The guest speaker was Dr. E. H. Hearst, Bristol, Tenn.-Va., his subject being "Alkalosis". This provoked much discussion and it was refreshingly interesting.

A letter from the secretary of the State Society was read in which the members were urged to patronize the advertisers in the VIRGINIA MEDICAL MONTHLY.

Dr. Glen Foster, of Stonega, is president and Dr. W. B. Barton, also of Stonega, is secretary-treasurer.

News

Medical College of Virginia News.

Mr. Bernard M. Baruch has made a grant of $250,000 for use over a ten year period in support of research and teaching in the field of physical medicine. The college is one of three centres selected for the support of this type of work. In addition, Mr. Baruch has provided funds for special grants-in-aid and fellowships in physical medicine in other institutions.

Dr. John S. Howe, associate professor of pathology, attended the meeting of the National Tuberculosis Association in Chicago, May 9-12, presenting a paper before the medical section on *Studies on Tuberculosis Bacillemia.*

Promotions on the faculty for the biennium beginning July 1, 1944, are as follows:

Dr. Lynn D. Abbott from associate in to assistant professor of biochemistry

Dr. Sumter S. Arnim from assistant professor to associate professor of operative dentistry and pathology

Dr. M. E. Berk from assistant to instructor in medicine

Dr. W. M. Bickers from instructor to associate in gynecology

Dr. A. J. Borowski from assistant to instructor in biostatistics

Dr. Merton E. Carver from instructor to associate in psychology

Dr. R. C. Cecil from assistant to associate in medicine

Dr. Alice Davis from instructor to associate in sociology

Dr. R. F. Eastman from associate in to assistant professor of operative dentistry

Dr. John C. Forbes from associate professor to research professor of biochemistry

Dr. E. T. Gatewood from associate professor to clinical professor of otology, laryngology, and rhinology

Dr. John S. Howe from associate professor to professor of pathology

Dr. Karl L. Kaufman from assistant professor to associate professor of pharmacognosy

Dr. Barnet M. Levy from assistant to instructor in operative dentistry and bacteriology

Dr. P. J. Modjeski from assistant to instructor in crown and bridge prosthesis and prosthetic dentistry

Dr. Charles W. Morhart from assistant professor to associate professor of prosthetic dentistry

Dr. Frank Pole from instructor to associate in urology

Dr. Spottswood Robins from instructor to associate in gynecology

Dr. Eric C. Schelin from assistant to instructor in obstetrics

Dr. J. H. Scherer from assistant professor to associate professor of medicine

Dr. E. U. Wallerstein from associate professor to professor of clinical otology, laryngology, and rhinology

Dr. W. C. Winn from associate in to assistant professor of obstetrics

Dr. William B. Porter, professor of medicine, spoke to the staff of the Langley Field Hospital on June 13 on *Arterio-Venous Fistula.*

Dr. I. A. Bigger, professor of surgery, spoke to the staff of the Naval Hospital at Portsmouth recently. He also attended the annual meeting of the American Medical Association in Chicago, giving a paper before the surgical section on *The Treatment of Traumatic Aneurysms and Arterio-Venous Fistulae.*

On June 1 members of the faculty, the Board of Visitors, the student body, and college alumni honored Mr. J. R. McCauley, secretary-treasurer, with a celebration marking his fortieth anniversary with the institution. Members of the group gave short talks in the Simon Baruch Auditorium, presenting a book of more than four hundred letters from friends. Following this Miss Helen McCauley presented an oil portrait of her father by John Slavin to the college.

Robert Smith Hudgens, formerly assistant superintendent of Emory University Hospital, Atlanta, and administrator since 1937, has accepted the position as director of the Medical College of Virginia Hospitals, and will enter upon his duties the latter part of July. He succeeds Dr. Lewis E. Jarrett, who resigned and left the 1st of June to accept a similar position at Tuoro Infirmary, New Orleans.

Superintendent of Blue Ridge Sanatorium.

Dr. Frank B. Stafford, who has been assistant superintendent at Blue Ridge Sanatorium, Charlottesville, since its opening in 1920, has been appointed superintendent of the Sanatorium, succeeding Dr. W. E. Brown, who recently resigned because of his health. Dr. Stafford is entering upon his new duties July 1.

Hospital Opened at Norfolk.

The Hampton Roads Medical Center was opened at Norfolk on June 15. This is located at Forty-Second Street and Powhatan Avenue and will accommodate 150 patients. It is under the cooperative supervision of the United States Public Health Service and the Virginia State Health Department, and is available for the treatment of all civilian infectious venereal diseases, without regard to race, sex or age. In view of the present situation in that area, it is contemplated that this hospital will limit its activities to the Hampton Roads area until such

time as the acute emergency now existing in that section is relieved.

Dr. R. Finley Gayle,

Richmond, was elected to the Council of the American Psychiatric Association, at its centennial convention recently held in Philadelphia.

Dr. C. Howard Cain

Recently accepted a position with the Cleveland County (N. C.) Health Department, at Shelby, and is at present assistant to the Health Director of that county. Dr. Cain is a native of Petersburg, a graduate of the Medical College of Virginia in 1930, and practiced for five years at Orange, Va.

Dr. Claude M. Lee,

Late of the Clifton Springs Clinic, Clifton Springs, N. Y., has opened an office in Charlottesville.

Dr. Lee was for 36 years in China as Superintendent and Surgeon to St. Andrews Hospital. He returned to this country on the first trip of the exchange ship "Gripsholm".

Dr. Rachel Weems,

Class of '24, Medical College of Virginia, until recently physician to the State Teachers College at Harrisonburg, has gone to Leetsdale, Pa., where she is specializing in Physical Medicine under Dr. Jessie Wright of the Medical School of the University of Pittsburgh. Her headquarters are the D. T. Watson School of Physical Therapy and the Crippled Children's Hospital, but she will also work in Pittsburgh.

Dr. Kurt Hirsch,

Of the Raiford Memorial Hospital Staff, Franklin, attended Post-Graduate Clinics in Surgery at Columbia University, New York, May 1-15.

The Richmond Eye, Ear, Nose and Throat Society

Held its regular meeting at the Commonwealth Club in this city on June 6. The program consisted of an illustrated talk on "Vincent's Infection and Other Lesions of the Mouth" by Dr. M. P. Doyle and Dr. B. M. Levy, of the School of Dentistry, Medical College of Virginia; and "An Unusual Case of Foreign Body in the Eye (tolerated for sixty-two years)" by Dr. W. F. Bryce.

Married.

Dr. John O. Rydeen and Miss Olivee Maria Nadonley, both of Norfolk, March 30.

Dr. Sarah Hildah Hoover, Richmond, class of December, 1943, Medical College of Virginia, and Mr. George R. Jones, Jacksonville, Fla., June 10. Mr. Jones is a member of the Junior class of the College.

Dr. John A. Wright, Jr., and Miss Mary Catherine Campbell, both of Doswell, June 3. Dr. Wright is a graduate of the Medical College of Virginia in 1937.

West Virginia State Medical Association.

At the meeting of this Association in May, Dr. Thomas L. Harris of Parkersburg was elected president and will take office January 1. Dr. Robert J. Reed, Jr., of Wheeling continues as president until that time. Dr. Mayes B. Williams of Wheeling and Lynwood G. Houser of Beckley were named vice-presidents, effective the same date. Mr. Charles Lively is executive secretary-treasurer. It was voted to hold the 1945 session in Clarksburg, the exact dates to be set later.

Dr. Warren F. Draper,

Deputy Surgeon General, U. S. Public Health Service, former State Health Commissioner of Virginia for three years, has been assigned to the Army with the grade of Brigadier General. His duties in this position will be concerned with public health problems of occupied countries.

Post-Graduate Summer Clinic.

The second annual post-graduate summer clinic, sponsored by the Southampton County Medical Society and the Fourth District Medical Society, will be held at Franklin on July 26, with Dr. Morgan B. Raiford presiding. The program will be as follows: Advances in the Insulin Drugs by Dr. William R. Jordan, Richmond; A Review of the Penicillin-Like Molds by Dr. Harvey B. Haag, Richmond; and Tropical Diseases as Related to Our Practice, the speaker to be announced.

Dr. Andrew F. Giesen,

Until recently of Konawa, Oklahoma, where he had practiced for fourteen years, has located in Radford and is an associate in surgery at the new Radford Community Hospital.

Raiford Memorial Hospital.

The new modern fire-proof addition to this hospital at Franklin is now under way. This will give

new clinic facilities, operating room, surgery and obstetrical departments, a complete new kitchen, dining room and cafeteria, and space for a physiotherapy department. There will be complete renovation of the present building which will add space to the nurses' home and administration. The time of construction will be about six months.

Virginia Doctors in Service—Supplement 8.

Since the list published in the June MONTHLY, we have been advised of the names of several additional Virginia doctors now with the Armed Forces. These are in alphabetical order with home addresses, on account of constant changes in rank and location. The original list appeared in July, 1942.

The MONTHLY is anxious to have as complete a list as possible and would appreciate being advised of omissions that they may be included in future supplements.

VIRGINIA DOCTORS IN SERVICE

Dr. A. Wilson Brown, Pocahontas
Dr. S. H. Catron, Marion
Dr. J. J. Clark, Richmond
Dr. Sam Milchin, Bishop
Dr. Julien H. Meyer, Roanoke
Dr. Fred M. Morrison, Lynchburg
Dr. Leonard David Policoff, Richmond
Dr. A. G. Schnurman, Roanoke
Dr. Douglas B. Stratton, Roanoke
Dr. Charles A. Young, Jr., Roanoke

Promotions in the Service.

Promotions of Virginia doctors in the Armed Forces noted recently are:

To Lieutenant Commander

Dr. J. E. Amiss, New Market

To Lieutenant Colonel

Dr. Glenn L. Walker, Roanoke

To Major

Dr. B. Randolph Allen, Suffolk

To Captain

Dr. Herbert Bryan Hutt, Alexandria
Dr. L. D. Policoff, Richmond

The International College of Surgeons

Will hold its ninth annual assembly at the Benjamin Franklin Hotel, Philadelphia, on October 3-5. The program will be devoted to War, Rehabilitation and Civilian Surgery.

This assembly, sponsored by the United States Chapter of which Thomas A. Shallow, M.D., F.A.C.S., F.I.C.S., of Philadelphia is President, has set up its Arrangement Committee with Dr. Rudolph Jaeger as General Chairman. Dr. Jaeger will be inducted as the incoming President of the United States Chapter at the convocation on Wednesday evening, October 4. He came to the Jefferson Medical College from Denver, Colo., where he specialized in Neurosurgery.

Eminent surgeons in Government, Military and Civilian practice have been invited to attend and present papers pertinent to surgery in their particular field of endeavor.

The Neuropsychiatric Society of Virginia

Held an interesting meeting in the Richmond Academy of Medicine Auditorium on June 8, with Dr. O. B. Darden of Richmond presiding. Dr. E. B. J. Whitmore, Jr., Assistant Physician of Central State Hospital, Petersburg, presented a paper on "Endocrinopathy as an Etiological Agent in Schizophrenia"; Dr. R. Finley Gayle of Richmond and Dr. Walter B. Quisenberry, Assistant Surgeon, U. S. Public Health Service, of the Southside Health District, gave a paper on "Syphilitic Hepatitis and General Paresis Occurring Simultaneously"; and Major D. B. Davis, M.C. (invited guest), Chief of Neuropsychiatry at the Army Air Base, Richmond, spoke on "Psychiatry in an Air Force Station Hospital". All papers were freely discussed. Following the program, there was a dinner for members and guests at the Commonwealth Club.

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

American Council on Education—Teachers for our times. 1944.
Baruch, Simon—Das Wasser in der ärztlichen praxis.
Beem, Frances M.—Pen and pencil drawings.
Bell, E. S.—The new baby. 1938.
Bezold, Fr.—Textbook of otology. 1908.
Brown, J. C.—Public relief 1929-1930.
Bulletin—The American College of Radiology. 1943.
Cash, W. J.—The mind of the South. 1941.
Cattell, Jaques, ed.—American men of science, a biographical directory, 1944.
Cook, Robert C. ed.—Who's who in American Education. 1943-44.
Ergebnisse der Physiologie—1903-1908.
Faurot, Walter L.—The art of whittling. 1930.
Fiero, George W.—Review of pharmacy. 5th. 1944.

Gesell, Arnold—Feeding behaviour of infants. 1937.
Goodspeed, Helen C.—Care and guidance of children. 1938.
Graves, Robert—The reader over your shoulder. 1943.
Gregory, A.—Constructive woodwork. 1939.
Groneman, Chris H.—Applied leathercraft.
Groves, Ernest R.—The American woman. 1944.
Hackh, I. W. D.—A chemical dictionary. 3rd. ed. 1944.
Harris, F. L. G.—Food 'n fun for the invalid. 1942.
Hussey, M. M —Teaching for health. 1938.
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Obituaries

Dr. Jabez Masten Harman,

Floyd, died June 3, from injuries received in an automobile accident. He was 77 years of age and graduated from the University of Louisville (Ky.) in 1891. He began the practice of medicine at Willis, Va., but soon moved to Floyd where he remained in active practice of his profession for 47 years. He was well known in Floyd, Patrick, and Franklin counties. He was a Scottish Rite Mason, a member of the Medical Society of Virginia, Floyd County coroner, and chairman of the Floyd County Board of Health.

Dr. Harman, overworked and fatigued, fell asleep at the wheel while returning from a professional call and died "in the harness" on an errand of mercy. He is survived by his wife and three children, Dr. Chris Harman, USA, stationed in Texas; Dr. William Harman, USA, overseas; and Mrs. Dorothy Harman Smith, a laboratory technician in the WAVES, stationed in California.

Dr. Richard Edward Albert,

Portsmouth died May 30, after a short illness. He was forty-eight years of age and received his medical degree from the University of Virginia in 1919. Dr. Albert had been a member of the Medical Society of Virginia for twenty years. His wife and a daughter survive him.

Dr. John Edward Harris,

Well known physician of Winchester, died May 30 following a heart attack, with which he was stricken while on a fishing trip. He was sixty-nine years of age and a graduate of the Medical College of Virginia in 1900. Dr. Harris had been secretary-treasurer of the Medical Society of Northern Virginia for many years and was also secretary of the Winchester Memorial Hospital. His wife, three sons and a daughter survive him. A brother is Dr. William Lett Harris of Norfolk.

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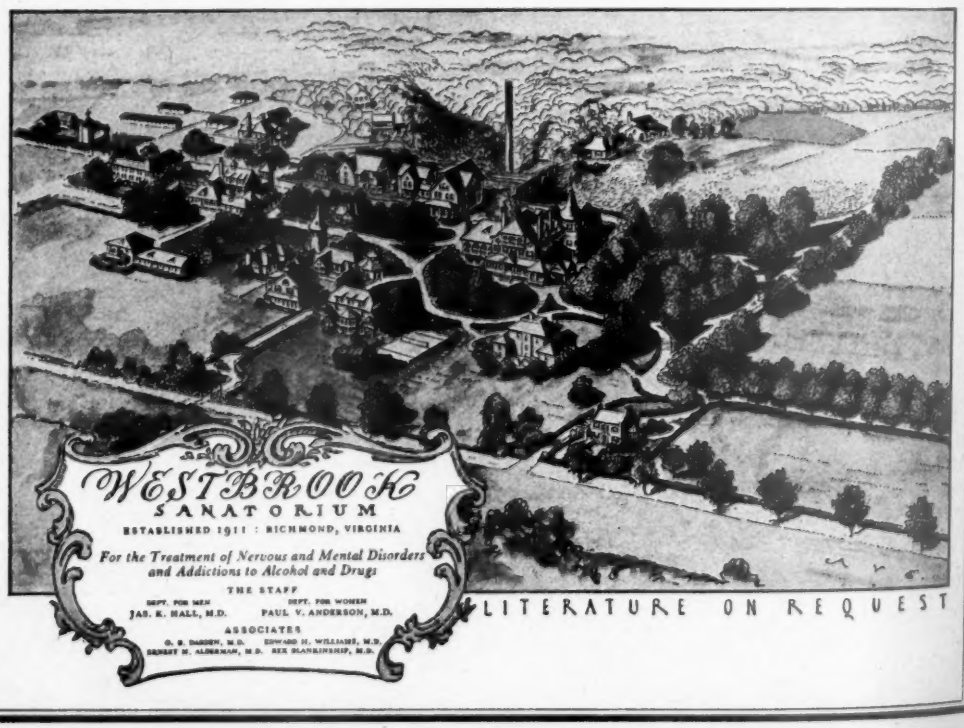

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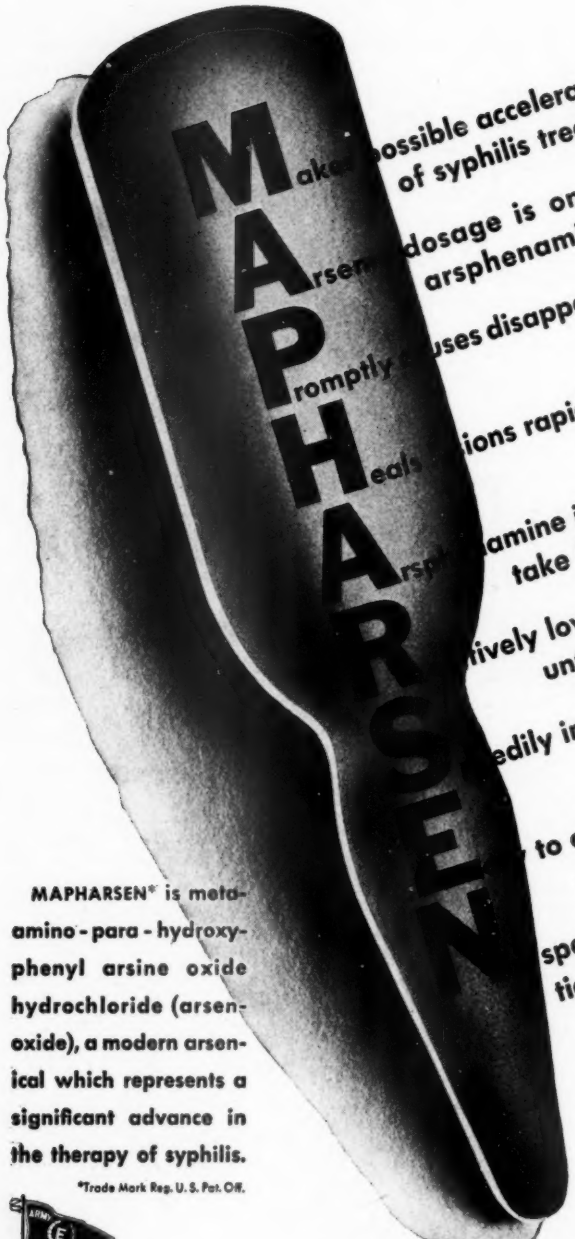

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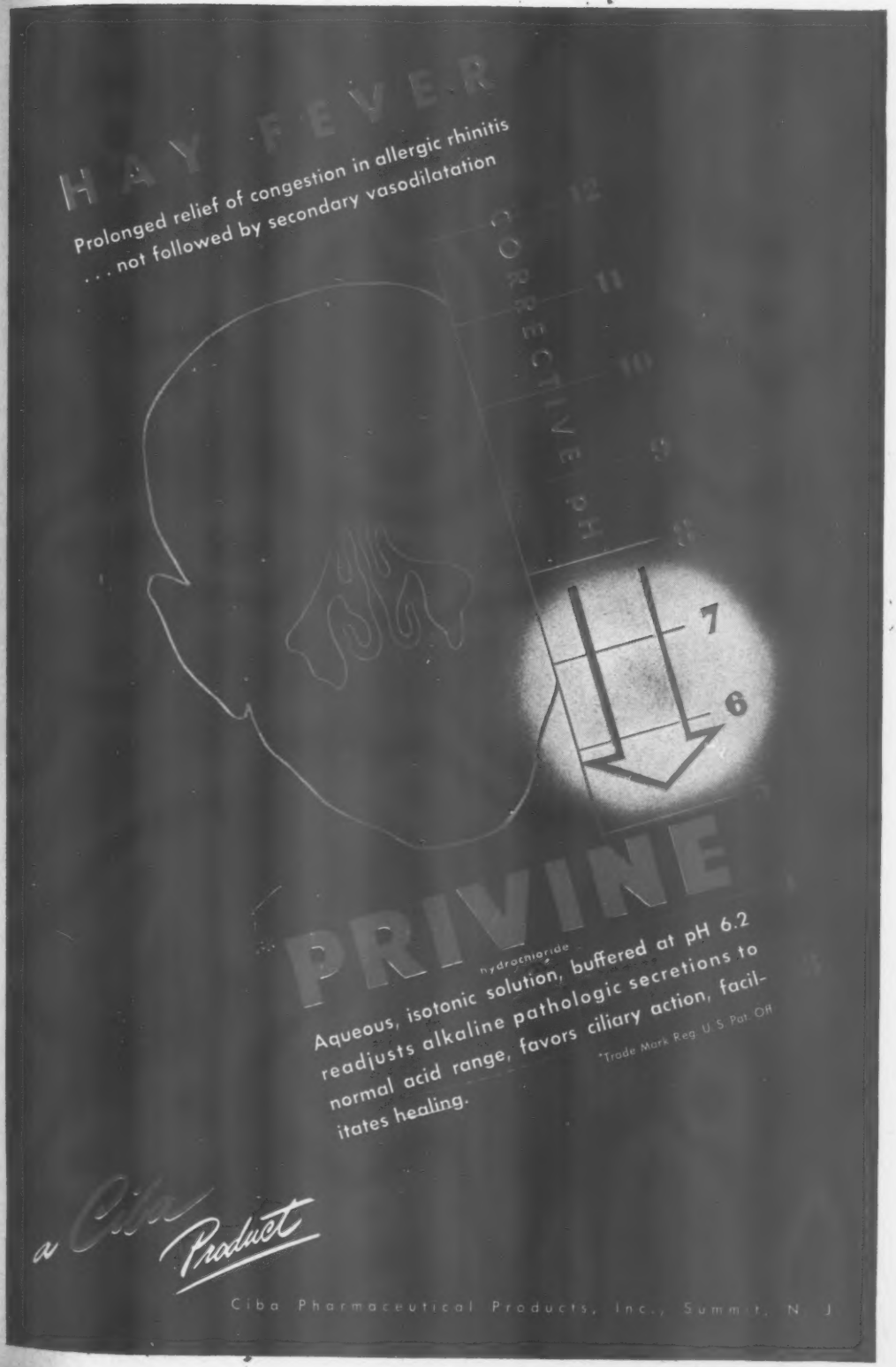
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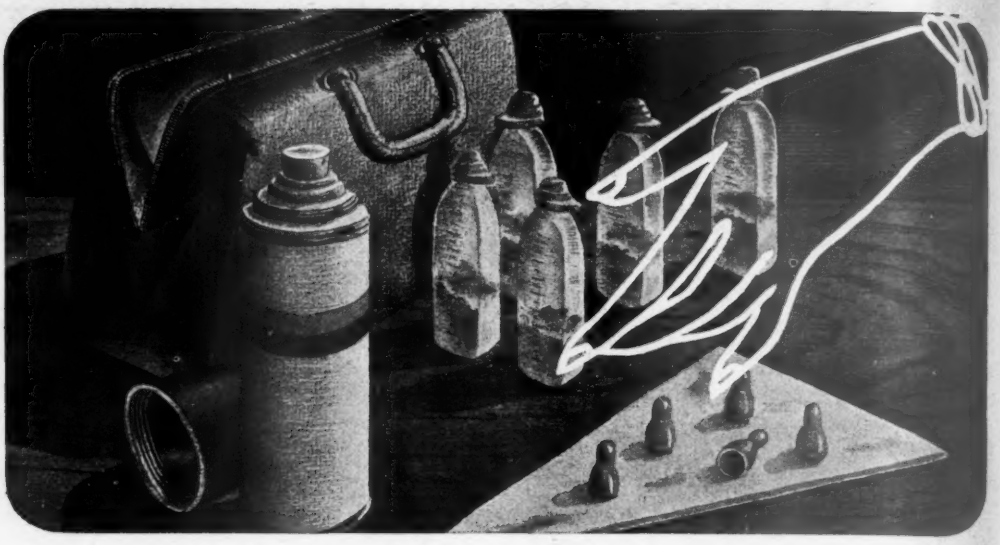

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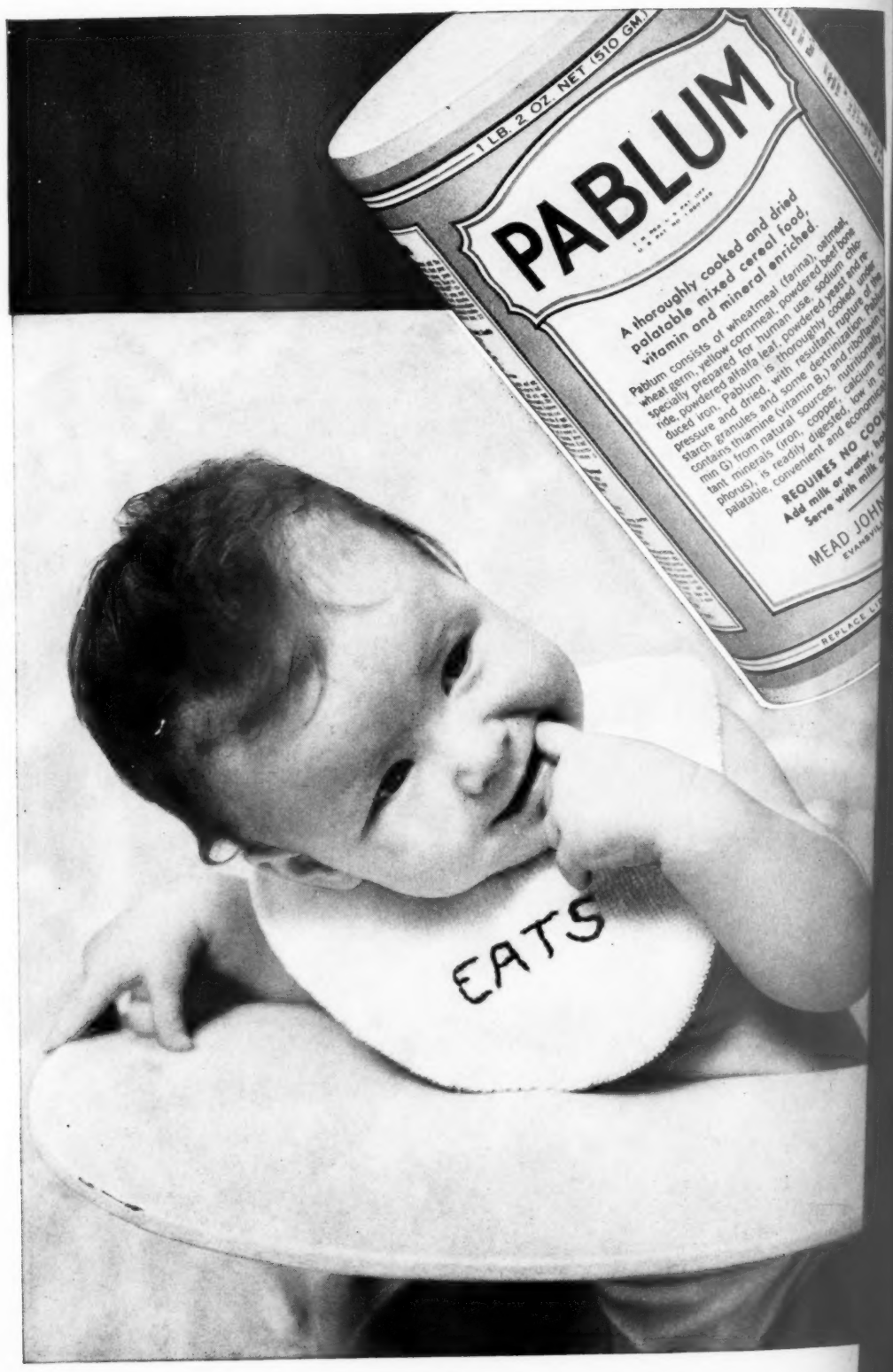
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